MEDICAL PROCEEDINGS

MEDIESE BYDRAES

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REDAKSIONEEL · EDITORIAL

BLOUDRUK VIR MEDIESE OPLEIDING EN DIE MEDIESE PRAKTYK IN SUID-AFRIKA

Elders in hierdie uitgawe publiseer ons *in extenso* die *Oorsig* (opgestel deur die Nasionale Buro vir Opvoedkundige en Maatskaplike Navorsing van die Departement Onderwys, Kuns en Wetenskap) in verband met die opleiding en indiensneming van mediese praktisyns in Suid-Afrika. Die volledige *Oorsig* bevat waardevolle gegewens oor hospitaalpersoneel en -akkommodasie, mediese personeel in die staatsdiens uitgesonder hospitaaladministrasies, tandartse, aptekers, verpleegsters en optometriste.

Die *Oorsig* is statisties, m.a.w. dit is 'n opsomming van veel van wat ons reeds van die huidige toestand weet, in 'n gerieflike en maklik toeganklike vorm. Voorspellings gegrond op statistiese ontleding moet egter met groot versigtigheid vertolk word, veral gesien die feit dat die huidige *Oorsig* die basis behoort te word van enige intelligente beplanning en vooruitloping van ons toekomstige behoeftes, veral gedurende die eersvolgende 5 jaar. Die beraamde vereistes vir sover dit hospitaalbeddens betref kan bv. oornag verander ten gevolge van ontwikkelinge in die farmaseutiese bedryf wat in die afgelope paar jaar werklik verbasende vooruitgang gemaak het vir sover dit die voorkoming en genesing van siektes

BLUE PRINT FOR MEDICAL EDUCATION AND PRACTICE IN SOUTH AFRICA

Elsewhere in this issue we publish *in extenso* the *Survey* (prepared by the National Bureau of Educational and Social Research of the Department of Education, Arts and Science) of the training and employment of medical practitioners in South Africa. The full *Survey* includes valuable data on hospital personnel and accommodation, medical personnel in the public services other than the hospital administrations, dentists, pharmacists, nurses and optometrists.

The *Survey* is statistical and thus summarizes much of our knowledge of the contemporary situation in a convenient and readily accessible form. Predictions based on statistical analysis, however, require cautious interpretation, particularly as the present *Survey* must become the basis for any intelligent planning and anticipation of our needs for the future and, in particular, for the next 5 years. The estimates of hospital bed requirements may, e.g. be modified overnight by developments in the pharmaceutical industry which, in recent years, has taken truly remarkable strides in preventing and curing disease. Tuberculosis is a good example in point where modern drug therapy has totally altered the complexion of a disease. Prognostication based purely on

betref. Tuberkulose is 'n goeie voorbeeld van die stelling dat die hele geaardheid van 'n siekte deur behandeling met moderne artsenymiddels verander kan word. Voorspellings wat bloot op statistieke gegrond was, kon onmoontlik nie rekening gehou het met die dramatiese vermindering in die aantal beddens wat vir die behandeling en bestryding van hierdie ernstige kwaal nodig sou wees nie.

Dit is dan ook passend dat oorweging verleen moet word aan die verpligtinge wat die farmaseutiese bedryf op die gebied van terapie aanvaar het. Die sulfonamiede, die antibiotica, die steroïede en die psigotropiese en antihipertensiemiddels (om maar net 'n paar voor die hand liggende voorbeelde te noem) het kragtige wapens in die hande van alle mediese praktisyns geplaas—wapens wat ons vermoë om siektes te kontroleer aansienlik verhoog het. Hierdie ontwikkelinge is moontlik gemaak alleen deur die enorme kapitaalhulpbronne en die wetenskaplike arbeidskrag waaroor die bedryf beskik. In baie opsigte is dit nie langer die mediese skole en die universiteite wat die voortou neem vir sover dit navorsing op die gebied van farmakoterapie betref nie. Hulle beskik eenvoudig nie oor die groot hoeveelhede geld wat noodsaaklik vir moderne farmakoterapeutiese navorsing is nie. Hulle speel egter 'n belangrike rol as medewerkers in die kliniese evaluasie van die nuwe artsenymiddels op 'n gebied waarvan die gesigseinders gedurig uitbrei.

Ons behoort spesifieke oorweging te verleen aan die arbeidskragte wat ons in die mediese navorsingsveld nodig het. In die *Oorsig* word daarop gewys dat 3% van die mediese professie in die V.S.A. by navorsingswerk betrokke is. Vir sover vergelyking moontlik is, is die Suid-Afrikaanse syfers 0.6% (Tabel 17 op bladsy 349). Dit betaam diegene wat vir die beplanning van ons mediese toekoms verantwoordelik is, om die betekenis van hierdie syfer in gedagte te hou en om planne op te stel vir die uitbreiding van hierdie onderdeel van ons mediese opleiding en geleenthede. Trouens, dit is 'n gebied waar die georganiseerde farmaseutiese bedryf bes moontlik 'n basis kan vind vir vrugbare samewerking met die mediese professie deur die beskikbaarstelling van navorsingsbeurse wat verbonde kan bly aan hospitale dwarsdeur die land en wat voltyds gewy kan word aan 'n program vir die kliniese evaluasie van nuwe middels.

Die belangrikste aspek van die verslag van diegene wat die *Oorsig* opgestel het, is sonder enige twyfel die voorspelling dat daar alleen op 'n redelike wyse in die mediese behoeftes

statistics could not have foreseen the dramatic drop in beds required for the management and control of this grave infection.

It is opportune to reflect on the obligations which the pharmaceutical industry has assumed in the field of therapy. The sulphonamides, the antibiotics, the steroids and the psychotropic and antihypertensive drugs (to take only a few obvious examples) have placed in the hands of all practitioners potent weapons which have wrought major advances in our ability to control disease. These developments have only been made possible by the enormous resources in capital and scientific manpower which the industry has been able to muster. In many respects the medical schools and the universities are no longer in the vanguard of research in the field of pharmacotherapy. They lack the very considerable financial endowments essential for modern pharmacotherapeutic research. They have a valuable role, however, as collaborators in the clinical evaluation of new drug developments in a field whose horizons are constantly being extended.

We should give specific consideration to the manpower which we need in the medical research field. The *Survey* notes that in the U.S.A. 3% of the profession is engaged in research. In so far as a comparison is permissible, the South African figure is 0·6% (Table 17, p. 349.) Those concerned with the planning of our medical future would do well to bear in mind the significance of this figure and the need to make ample provision to support and increase this feature of our medical training and opportunity. Indeed, this is an area in which the organized pharmaceutical industry may find a basis for fruitful cooperation with the medical profession, by creating research fellowships which could be attached to hospitals throughout the country and which could be devoted full-time to a programme of clinical evaluation of new drugs.

The major impact of the report of the *Survey* will undoubtedly be made by the prediction that the country's medical requirements will only reasonably be met by something like 4,000 additional practitioners by 1965; whereas the estimated yield from our medical schools will be fewer than 2,000. As the *Survey* remarks:

'. . . there appears to be need for considerable concern in this connexion. Although an appreciable number of South African citizens qualify abroad and immigrant practitioners continue to arrive, it is hardly to be expected that these groups will meet the unmet needs for medical practitioners in the country.'

van ons land voorsien kan word indien ongeveer 4,000 addisionele praktisyns teen die jaar 1965 geregistreer is. Daarenteen sal die beraamde opbrengs van ons mediese skole minder as 2,000 wees. Soos daar in die *Oorsig* gesê word:

'. . . dit skyn asof daar heelwat rede vir besorgdheid in hierdie verband bestaan. Hoewel 'n nogal aansienlike aantal Suid-Afrikaners in die buiteland kwalifiseer en immigrant-dokters nog steeds in ons land aankom, kan daar skaars verwag word dat hierdie groepe in die onvoldane behoefte aan mediese praktisyns in hierdie land sal kan voorsien.'

Die verspreiding van mediese praktisyns in die land geniet ook aandag in die *Oorsig*:

'. . . die verhouding tussen bevolking en mediese praktisyns behoort oorweeg te word in die lig van plaaslike en provinsiale omstandighede met behoorlike inagneming van Bantoe-stamgewoontes sowel as politieke, maatskaplike, ekonomiese en ander oorwegings.

Daar is onmiskenbare aanduidings van 'n gebrek aan 'n voorafbepaalde patroon in die verspreiding van mediese praktisyns in die Unie. Heelwat verdere navorsing moet gedoen word na hierdie dringende probleem van die verspreiding van mediese dokters in die gemeenskappe van die Unie.'

Die behoefte aan mediese dienste is universeel, maar hierdie behoefte moet ontleed word in die lig van die effektiewe aanvraag. Dit beteken 'n ontleding van stedelike teenoor plattelandse, en blanke teenoor nie-blanke behoeftes. Ons kan nie aanneem dat die verspreiding van dokters onder die bevolking verband hou met die land se behoeftes nie, omdat talle groot streke (of hulle nou al dun of dig bevolk is) nie oor voldoende mediese praktisyns of ander mediese fasiliteite beskik nie.

Hierdie patroon word grontendeels deur ekonomiese faktore bepaal. Dokters verskil nie van enige ander landsburgers nie. Hulle sal hulle vestig waar daar redelike vooruitsigte vir hulle is om 'n redelike bestaan te vind, en by voorkeur op plekke waar hul professionele assosiasies en belange in stand gehou kan word en waar hulle naby beskaafde geriewe is. Die onvermydelike resultaat in ons hedendaagse samelewing is 'n neiging vir mediese praktisyns om hulle in die groot stedelike gebiede saam te trek.

Op die oomblik is daar geen aanduiding dat hierdie neiging verander of in 'n ander rigting gestuur sal kan word nie, veral gesien die feit dat die bevolking in uitgestrekte dele van die land eenvoudig nie private mediese dienste kan bekostig nie. Dit kan slegs verander word indien dit die Staat se beleid word om werk op 'n voldoende aantreklike peil van vergoeding en op voldoende aantreklike voorwaardes tot beskikking van mediese praktisyns in sulke streke te stel. Om hierdie probleem die hoof te bied, is egter 'n eersterangse maatskaplike onderneming waarin die Staat die voortou sal moet neem.

Die moeilikhede waarmee die staatsdiens in die afgelope paar jaar te kampe gekry het in sy pogings om rekrute te werf—ondanks die aansienlike verhoging van salarisse—suggereer dat die stedelike konsentrasie van mediese praktisyns glad nie so oordadig is as wat soms beweer word nie.

As die konsentrasie inderdaad buitensporig word, sal die saak deur die wet van vraag en aanbod gereguleer word. Dit dui aan hoe noodsaaklik dit is om 'n voldoende aantal praktisyns beskikbaar te stel in streke waar daar 'n voor die hand liggende be-

The distribution of medical practitioners in the community also received special attention in the *Survey:*

'... the population : medical practitioner ratio should be considered in the light of the local and provincial circumstances with due regard to Bantu tribal customs as well as to political, social, economic and other considerations.

There are undoubted indications of a lack of a predetermined pattern in the distribution of medical practitioners in the Union: much further research is desirable into this ever pressing problem of the distribution of medical doctors in the community of the Union.'

The need for medical services is universal, but this need must be analysed in relation to the effective demand. This means an analysis of urban as against rural, and White as against non-White requirements. We cannot accept that the distribution of doctors to population is related to the country's needs, because many large areas (whether thinly or densely populated) are inadequately provided with medical practitioners or other medical facilities.

This pattern is determined largely by economic factors. Doctors are no different from any other citizens. They will settle where they think they have reasonable prospects of earning a reasonable living and preferably in places where they can maintain their professional associations and interests and be near civilized amenities. The inevitable result in our present society is a tendency for a concentration of practitioners in the larger urban areas.

At present there is no indication that this trend will be altered or reversed, particularly as in vast areas of the country the population cannot afford medical services. It can only be altered if, as a matter of State policy, employment at a sufficiently attractive level of remuneration under sufficiently attractive conditions, is offered for practice in such areas. To cope with this problem is a major social undertaking in which the State would have to take the initiative.

The difficulty in recent years which the public service has experienced in obtaining recruits, despite considerable augmentation of salaries, suggests that the urban concentration of medical practitioners is by no means as excessive as may be alleged.

If the concentration were to become excessive, the law of supply and demand will regulate the matter. This indicates the need for providing adequate numbers of practitioners in areas where their need is obvious. This requires, firstly, an initial assurance that they will be subsidized or employed and have guarantees of security as well as of advance-

hoefte aan hul dienste bestaan. Dit vereis, eerstens, 'n aanvanklike versekering dat hulle gesubsidieer of in diens geneem, en dat waarborge van veiligheid en vooruitgang tot hul beskikking gestel sal word. In die tweede plek, as ons aanneem dat die toestand daarop dui dat ons binne enkele jare aansienlik meer dokters nodig gaan hê, dan moet doeltreffende voorsiening gemaak word vir die opleiding van praktisyns om hierdie ampte te vul. Dit beteken dat die volste en vryste gebruik van al ons opleidingsfasiliteite in alle dele van die land gemaak sal moet word.

Hierdie *Oorsig* gaan veel verder as die *Verslag van die Komitee insake Mediese Opleiding* (1939). In sommige opsigte word daar 'n poging aangewend om die vrae wat 20 jaar gelede gestel is, te beantwoord. Dit sal ongetwyfeld beskou word as 'n definitiewe bydrae tot 'n beter begrip van die probleme opgelewer deur die opleiding en indiensneming van mediese praktisyns in Suid-Afrika. Terwyl die statistiese gevolgtrekkings afsonderlike betragting verdien, verg die dokument as geheel die ernstige aandag nie alleen van ons mediese opvoeders en die georganiseerde mediese professie nie, maar ook van die individuele private praktisyn.

ment. Secondly, if we accept the situation as pointing to an increased need for doctors in a few years' time, adequate provision must be made to train practitioners to fill these posts. This means the fullest and freest use of all our training facilities in all parts of the country.

This *Survey* goes much further than the *Report of the Committee on Medical Training* (1939). In some respects it purports to answer some of the questions posed some 20 years ago. It will undoubtedly rank as a definitive contribution to the understanding of the problems of training and employment of medical practitioners in South Africa. While its statistical conclusions deserve independent scrutiny, the document as a whole will require the serious attention of our medical educators and the organized medical profession as well as of the individual private practitioner.

ABSTRACTS

CORTICOSTEROIDS IN THE MANAGEMENT OF POLIOMYELITIS

According to Selye, corticosteroids will elicit a response in diseases in which the noxa does not cause intensive or extensive damage to tissue, but provokes an overshooting inflammatory defensive reaction which is excessive for the patient concerned. Such conditions also seem to be present in poliomyelitis, and the question thus arises whether these hormones are indicated in Heine-Medin disease (endemic poliomyelitis).

The author recommends this indication for the followng reason. Infantile paralysis is accompanied by inflammatory oedema of a reactive type. This inflammatory defensive reaction is similar to that occurring in other diseases in which the use of corticosteroids is justified and therapeutically successful. Thanks to their antitoxic effect, the adrenocortical hormones bring about a diminution in the organic reaction and reduce sensitization towards the toxic and infectious noxa. The effect of the corticosteroids on the organism as a whole is likewise valuable: the patient's appetite increases, general condition and mood improve, and pain subsides or disappears altogether. The corticosteroids should not, of course, be used as the only treatment for poliomyelitis, but, in the author's experience, they are good adjuvants.

[Pedrote Guinea, J. A. (1959): Med. Clín. (Spain), **32**, 36].

INFECTIOUS DISEASES AND CORTICOSTEROIDS

The author reviews the possible uses of corticosteroids in the treatment of various infectious diseases and rheumatic affections. He considers that one must not expect these hormones to do more than inhibit the patient's reaction to an infection or to allergic processes. The corticosteroids should therefore not be used for mild, circumscribed diseases or for those that subside spontaneously, but should be reserved for severe cases, in which they frequently display a life-saving effect.

In mumps orchitis cortisone can reduce the pain and testicular swelling, but cannot shorten the duration of the disease. It may be expected to produce symptomatic improvement in trichinosis. In pneumococcal pneumonia the corticosteroids are capable of reducing the fever and improving the symptoms, though not permanently. In meningitis, a turn for the better can be achieved with corticosteroids or ACTH. In typhoid fever, too, cortisone appreciably enhances the prospects of success with antibiotics. There is still some uncertainty about the results to be obtained in brucellosis. Viral hepatitis often responds well to corticosteroids, as does herpes zoster. Tuberculous diseases of varying localization usually derive benefit from corticosteroids, provided tuberculostatic agents are administered concomitantly.

[Reimann, H. A. (1959): Lebanese Med. J., **12**, 62].

BLOOD CHOLESTEROL LEVELS

Australian *whites and natives* of New Guinea have the same *blood cholesterol levels* at birth and in the first year of life. Subsequently, the level continues to rise in the whites, while it falls in the natives. The levels for adults are 205 and 130 mg. % respectively. The reason for this difference is still unknown; diet may well be a principal factor.

[Whyte, H. M. and Yee, I. L. (1958): Australas. Ann. Med., **7**, 336].

AGEING OF ARTERIES

The acid *mucopolysaccharides* occurring in the vascular wall probably play an important part in the *ageing of arterial tissue*. Extracts from human aortas have shown that these mucopolysaccharides consists of chondroitin sulphuric acid A (about 50%), chondroitin sulphuric acid B (15%), heparitin sulphuric acid (15%), and substances similar to heparin (20%).

[Dyrbye, M. O. (1959): Bull. Soc. Sci. Méd. Luxembourg, **96**, 75].

MEDICAL PRACTITIONERS IN SOUTH AFRICA

THEIR TRAINING AND EMPLOYMENT*

1. The *Report* of the Committee on Medical Training (1939) opens with the following paragraph.

'The question as to whether South Africa is training enough medical practitioners for the needs of its population is one on which there is great divergence of opinion, according to the angle from which it is approached. If the whole of the population, including both European and non-European is taken into consideration, there can be no doubt that in comparison with other countries, our medical services are hopelessly inadequate. The statistics which we have been able to collect and which are fully set out in the accompanying Tables indicate a proportion of one licensed practitioner to over 5,000 of population. If the European population only is taken, the figure becomes a little over 1,000. The distribution table as well as the average figures should be carefully studied in order to arrive at the right conclusions.'

There can be little doubt that these problems remain largely without answer at the present time, some 20 years after the above report appeared. The circumstances of the multi-racial population in the Union, the diversity of conditions under which people live in urban areas, in rural areas or in the relative isolation of parts of the reserve areas, and the complex interplay of the various non-White ways of life upon the Western or White way of life, all add to the multiplicity of factors which compound themselves into a universe of permutative complex influences affecting the provision of medical services to the nation.

THE SURVEY

2. The provisions of the Medical, Dental and Pharmacy Act, No. 13 of 1928, make it obligatory for any medical practitioner or dentist wishing to practise in the Union to register himself with the South African Medical and Dental Council. As the records of this Council are kept up to date and reports are published annually, the physical enumeration of medical practitioners did not present any very great difficulties.

It is appropriate to pay tribute to the Registrar of that Council at this stage for the gracious assistance given on many occasions during this survey.

For purposes of obtaining information other than was obtainable from the records of the South African Medical and Dental Council, a survey of medical practitioners was planned on the basis of a sample of those registered on 1 January 1958.

THE NUMBER OF REGISTERED PRACTITIONERS IN THE UNION: THE UNIVERSE AND THE SAMPLE

3. On 1 January 1958 there were 7,352 medical practitioners and 423 interns registered in the Union. Of these many were subsequently found to be out of the country at the time and in consequence did not count in the survey undertaken. It was not considered necessary to include more than 1,000–1,500 in the sample to be surveyed. Using a system of random numbers, a sample of 1,200 medical practitioners excluding interns was therefore chosen from the alphabetical register of the South African Medical and Dental Council, i.e. approximately one sixth of the total number registered.

(Random numbers system used was drawn up by Fisher and Yates in *Statistical Tables for Biological, Agricultural and Medical Research*, published by Oliver and Boyd, London, 1948.)

Investigation was then made regarding the inclusion of specialists (especially those of which the groups are small) in the sample. To ensure adequate representation 2 more names were added from each of the specialist groups of plastic and maxillo-facial surgeons, therapeutic radiologists and venereologists.

4. A questionnaire to medical practitioners was drafted along lines intended to elicit such information as was desirable and necessary for this survey. This draft questionnaire was tried out on a small group of 10 medical practitioners. It was then revised in both form and content and tried out once more on a small experimental group. After one or two further small amendments had been made, the questionnaire was printed in its final form.†

5. The questionnaire was then sent by registered post to the 1,200 medical practitioners in the sample drawn in a manner described in paragraph 3 above with an addressed franked envelope for the return of the completed questionnaire.

6. Some 700 questionnaires were received back within a reasonable period of 2–3 months. A

* Chapter 4 of *A Survey of the Training and Employment of Scientists and Engineers in South Africa. Part 5: The Training and Employment of Medical, Dental and Auxiliary Medical Personnel.*

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† In the original Report this is found in Appendix 3.

reminder, requesting that the completed questionnaire be returned, and accompanied by a new copy of the questionnaire, was depatched to the non-respondents 4 months after the depatch of the first questionnaire. More replies were received. A third reminder was despatched after a further interval of 2 months with the result that once again a few more completed questionnaires were returned, making a total of 851. Of these 12 were so incomplete as to be worthless, leaving 839 in the survey sample group proper, i.e. 70% of those despatched.

7. A test check was then made of the non-respondents against the respondents in respect of a known characteristic traceable through the medical register, i.e. geographical distribution of practitioners. It was found that the frequencies noted in the non-responding group did not differ materially from those of the responding group. It was therefore assumed that the responding group could be accepted as an adequate sample. This sample of 839 constituted 11.4% of the total number of registered practitioners.

8. With a few exceptions, all the questionnaires were completed in full. Where this was not so, the fact is recorded in the data by the words 'not stated.'

SEX OF MEDICAL PRACTITIONERS: MARITAL STATE OF FEMALE PRACTITIONERS

9. The sex and marital state of the registered medical practitioners is indicated in Table 13.

AGE PATTERN OF MEDICAL PRACTITIONERS

10. The age pattern of the medical practitioners within the survey is indicated in Table 14.

The mean age for all medical practitioners was 42 years.

NATURE OF PROFESSIONAL MEDICAL EMPLOYMENT

11. In reply to a question as to whether the respondent was still engaged in active professional practice or not, 44 (5%) stated that they were no longer professionally active. The inference is that some 385 doctors still registered are not practising their profession.

12. Some 57% of all registered medical practitioners are in either full-time or part-time employment in the employ of a public authority. The frequency distribution amongst these employers is indicated in Table 15.

Having regard to the fact that industrial and mining undertakings, medical benefit schemes and other private undertakings employ medical practitioners, it would not be unreasonable to estimate that more than 60% of all medical practitioners undertake some form of salaried employment.

13. This was borne out by the replies to a further question in which the nature and amount of independent and salaried employment undertaken was investigated. The data are indicated in Table 16.

TABLE 13: SEX OF MEDICAL PRACTITIONERS

	Male	*Female*			*Not Stated*	*Total*
		Married	*Single*	*Total*		
No. in Sample	738	70	23	93	8	839
Percentage	88	8	3	11	1	100
Estimated Total	6,467	613	202	815	70	7,352

One ninth of the medical practitioners are female; the great majority of these, i.e. almost three quarters, are married.

It is of interest to note that in the United States of America in 1955, 6% of all physicians were female. (*Health Manpower Chartbook*, U.S. Department of Health Education and Welfare 1957).

TABLE 14: AGE FREQUENCIES OF MEDICAL PRACTITIONERS

Age Group	20—24	25—29	30—34	35—39	40—44	45—49	50—54
No. in Sample	6	101	160	153	120	83	53
Percentage	7	12	19	18	14	10	6
Estimated Total	53	885	1,402	1,341	1,052	727	464

Age Group	55—59	60—64	65—69	70—74	75—79	80—	*Not Stated*
No. in Sample	70	45	20	13	2	4	9
Percentage	8	5	3	2	·2	·5	1
Estimated Total	613	394	175	114	18	35	79

TABLE 15: MEDICAL PRACTITIONERS EMPLOYED BY PUBLIC AUTHORITY

	No. in Sample	*Per cent.*	*Estimated Total*
Union Dept. of Health	71	8	622
Other Union Dept.	41	5	359
Provincial Admin.	219	26	1,919
Municipal or Local Authority	39	5	342
Other Public Service	47	6	412
More than one Service	62	7	543
None	360	43	3,155
Total	839	100	7,352

Just over one third of all registered medical practitioners are in full-time salaried employment whilst only just over a quarter are in full-time independent private practice. A further quarter split their services between private practice and salaried employment.

TABLE 16: TYPE OF EMPLOYMENT IN PRACTICE

	No. in Sample	*Per cent.*	*Estimate of Total*
Full-time independent practice	218	26	1,910
Full-time salaried employment	284	34	2,489
Independent practice plus salaried employment	229	27	2,007
Part-time practice only	17	2	149
Part-time salaried employment only	31	3.8	271
No longer practising profession	30	3.7	263
Other category	13	1.5	114
Not Stated	17	2	149
Total	839	100	7,352

THE FIELD OF PROFESSIONAL ACTIVITY

14. Although it is not always practicable to define the boundary between different phases of professional activities, an attempt was made to analyse the fields in which practitioners were mainly occupied. Table 17 gives an indication of the data in this respect.

In the United States of America, in 1955, some 16% were reported as engaged in full-time hospital service, 6% in Federal service and 3% in research, teaching and administration. From the data available, it is not possible to derive information for more detailed comparative considerations.

TABLE 17: FIELDS OF MAIN PROFESSIONAL ACTIVITY

Field	*No. in Sample*	*Per cent.*	*Estimated Total*
Clinical	597	71	5,231
Administrative	28	3	245
Routine Laboratory	12	1.5	105
Teaching	7	0.8	61
Research	5	0.6	44
Non-medical	2	0.2	18
Mixed	120	14	1,052
Not Stated	68	9	596
Total	839	100	7,352

PARTNERS IN PRACTICE

15. In private practice partnerships are formed quite frequently. The data in relation to this particular aspect are indicated in Table 18.

TABLE 18: NO. OF PARTNERS IN PRACTICE

No. of Partners	*No. in Sample*	*Per cent.*	*Estimated Total*
0	200	24	1,753
1	90	11	789
2	59	7	517
3	22	3	193
4	7	0.8	61
5	3	0.3	26
Not Stated	458	55	4,013
Total	839	100	7,352

Amongst the 45% reporting on this aspect, 24% of the total or just over half of the group appear to work on their own while a quarter mention having one partner, the remainder mention 2 and 3 partners in appreciable numbers while very few have more partners.

It is of course possible that in replying to the questionnaire a certain degree of duplication has crept in by virtue of more than one member of a partnership replying to the same question in identical manner.

ASSISTANTS IN PRIVATE PRACTICE

16. As opposed to partnerships, the matter of assistantships was also investigated.

The number of practitioners reporting the employment of assistants is just over 7% of the total or one fifth of those responding to the question of the assistantships in existence; the vast majority were in positions where one assistant only was employed.

TABLE 19: NUMBER OF ASSISTANTS IN PRACTICE

No. of Assistants	*No. in Sample*	*Per cent.*	*Estimate of Total*
0	246	29	2,155
1	53	6	464
2	5	0.6	44
3	1	0.1	9
4	0	0	0
5	1	0.1	9
6 or more	3	0.3	27
Not Stated	530	64	4,644
Total	839	100.1	7,352

QUALIFICATIONS OF REGISTERED MEDICAL PRACTITIONERS

17. The qualifications required of medical practitioners entitling them to registration are prescribed by regulations promulgated on 24 February 1956 under the provisions of the Medical, Dental and Pharmacy Act of 1928.

The qualifications of the South African Universities which are acceptable are M.B., B.Ch. or M.B., Ch.B., i.e. Bachelor of Medicine and Bachelor of Surgery in combination. A variety of overseas qualifications is also acceptable.

The numbers of qualified practitioners registered on 1 January 1958 were from universities distributed as follows. (Figures from the records of S.A. Medical and Dental Council.)

South Africa	*No. Registered*		*Per cent.*
Cape Town	2,308		30.7
Witwatersrand	2,246		29.8
Pretoria	733		9.7
Total S.A.		5,287	70.2
United Kingdom			
England	958		12.7
Scotland	774		10.3
Ireland	275		3.7
Total U.K.		2,007	26.7
Holland	86		1.1
Germany	65		.9
Other countries	83		1.1
Total other		234	3.1
Total		7,528	100

During the calendar year 1958, new registrations were from universities distributed as follows:

	No. Registered	*Per cent.*
South Africa	248	79
United Kingdom	48	15.5
Other countries	16	5.5
Total	312	100.0

It seems probable that a lesser percentage of South African students is proceeding overseas for their training in medicine than has been the case in previous years; there is nevertheless still an appreciable annual accrual from outside the Union. On the other hand this may be offset to a considerable extent by medical practitioners leaving the Union permanently.

SUBSEQUENT QUALIFICATIONS

18. Qualifications in medicine obtained subsequent to original or first qualifications were taken at centres indicated in Table 20.

TABLE 20: QUALIFICATIONS EARNED SUBSEQUENT TO FIRST QUALIFICATION IN MEDICINE

Location of University	*No. in Sample*	*Per cent.*	*Estimated Total*
Cape Town	26	3	228
Pretoria	13	1.5	114
Witwatersrand	53	6	464
England	104	12	911
Scotland	50	6	438
Ireland	10	1	88
Holland	10	1	88
Other Countries	9	1	79
Two Countries	50	6	438
Not Stated	514	61	4,504
Total	839	100	7,352

It appears that an appreciable amount of post-graduate work is being done in the Union, although the number who have taken additional qualifications abroad still exceeds those who have studied in South Africa.

19. Qualifications in faculties other than in medicine have been taken in the faculties shown in Table 21 to the extent indicated.

TABLE 21: QUALIFICATIONS OTHER THAN IN MEDICINE

Faculty	*No. in Sample*	*Per cent.*	*Estimated Total*
Dentistry	3	0.3	26
Arts	44	5	386
Science	72	9	631
Engineering	1	0.1	9
Commerce	6	0.7	52
Law	4	.5	35
Agriculture	1	0.1	9
Other	9	1	79
Two or more	12	1.4	105
Not Stated	687	82	6,020
Total	839	100	7,352

The estimated number of degrees at the different levels was as follows:

Doctorate	70
Master's degree	184
Bachelor's degree	1,008
More than one	105

REGISTRATION AS SPECIALISTS

20. The numbers of specialists registered on 1 January 1958 in each classification is shown in Table 22.*

TABLE 22: SPECIALISTS ACCORDING TO FIELD OF SPECIALIZATION

Specialization	*Number*
Anaesthetics	118
Dermatology	33
Diagnostic Radiology	32
Medicine	186
Neurology	28
Neuro-surgery	17
Obstetrics and Gynaecology	126
Ophthalmology	100
Orthopaedics	66
Otorhinolaryngology	67
Pathology	79
Paediatrics	68
Physical Medicine	16
Plastic and Maxillo-facial Surgery	6
Psychiatry	66
Radiology	77
Radiology and Electro-Therapeutics	36
Therapeutic Radiology	5
Surgery	172
Thoracic Surgery	17
Urology	38
Venereology	17
Total	1,370

The number of specialists in practice represents 18.8% of all medical practitioners: Medicine (2.6%) Surgery (2.3%) Obstetrics and Gynaecology (1.8%) Anaesthetics (1.7%) and Ophthalmology (1.3%) each having over a hundred specialists.

21. The number of full-time specialists as a percentage of all physicians in the United States of America during 1955 was reported to be 39. This figure has shown a remarkable growth in the percentage of specialists as is indicated in Table 23.

22. These specialists are included in the group of those who have taken subsequent professional academic qualifications in medicine after qualifying. The estimated numbers of these are as shown in Table 24.

* The distribution of these specialists is indicated in the original Report in the Demographic Table G in Appendix 14.

TABLE 23: SPECIALISTS IN THE U.S.A.

Year	*Specialists as a Percentage of Physicians*
1923	11
1929	15
1934	17
1940	21
1949	31
1955	39

(*Health Manpower Chartbook*, U.S. Dept. of Health, Education and Welfare, 1957.)

TABLE 24: POST-GRADUATE QUALIFICATIONS IN MEDICINE

Qualification	*Estimated Number*
M.D.	254
Ch.M.	79
M.Med.	70
F.R.C.S.	385
M.R.C.P.	202
Diploma in Speciality	508
Diploma in Public Health	342
Other qualifications	464

FUTURE SPECIALIZATION

23. In order to ascertain the trend towards specialization in this profession, respondents were requested to state whether, being registrable as a specialist in the Union, they had not registered as such. The estimated numbers of these according to each speciality are shown in Table 25.

TABLE 25: REGISTRABLE PRACTITIONERS NOT ON SPECIALIST REGISTER

Speciality	*Estimated Number Registrable*
Anaesthetics	35
Medicine	26
Neurology	9
Obstetrics and Gynaecology	26
Pathology	18
Paediatrics	26
Plastic and Maxillo-facial Surgery	9
Psychiatry	9
Surgery	88
Therapeutic Radiology	9

A significant number of practitioners have the necessary qualifications for registration as surgeons but have not yet become registered. The numbers in the other classifications are not very great.

24. Further enquiry was made in regard to the aspirations for future specialization on the part of qualified medical practitioners. The numbers who hoped to qualify for specialization are indicated in Table 26.

TABLE 26: MEDICAL PRACTITIONERS ASPIRING TO SPECIALIZE

Speciality	*Estimated Number of Aspirants*
Anaesthetics	219
Dermatology	26
Diagnostic Radiology	26
Medicine	228
Neurology	9
Neuro-surgery	18
Obstetrics and Gynaecology	175
Ophthalmology	35
Orthopaedics	70
Otorhinolaryngology	18
Pathology	114
Paediatrics	280
Plastic and Maxillo-facial Surgery	44
Physical Medicine	35
Psychiatry	79
Radiology	35
Radiology and Electro-Therapeutics	9
Surgery	385
Therapeutic Radiology	18
Thoracic Surgery	0
Urology	26
Venereology	0

The correlation of the above frequencies with those of the actual number of specialists registered is .8. Significant differences are to be noted in ophthalmology, otorhinolaryngology, paediatrics, radiology and surgery.

RETIREMENT AND PENSION PROVISIONS

25. All medical practitioners were requested to indicate the age at which it was anticipated they would retire. The data in respect of those medical practitioners in full-time salaried employment and those in private practice are indicated separately in Table 27.

As is to be expected there is a sharper delineation amongst those in full-time salaried employment at the age barrier zone of 61–65 at which time most salaried professionally engaged persons are prone to retire. At age 65 there is a drop of the percentage still active from 56.3 to 5.9% while for those in private practice it is from 36.4 to 20.3%.

Twenty-five per cent of all medical practitioners stated that they would be in receipt of a pension upon retirement, 49% stated that they would not receive any pension while 26% failed to reply to this question.

26. Of those who, being still registered, had retired from active practice, some had retired at an early age. Table 28 indicates the frequency in the different ages at which practitioners stated they had retired.

TABLE 28: REGISTERED PRACTITIONERS RETIRED FROM PRACTICE

Age of Retirement	*Estimated Number*
46–50	70
51–55	35
56–60	53
61–65	61
66–70	26
71–75	35
76–80	9
80–	9

27. The reasons given for retirement were variously given as shown in Table 29.

TABLE 29: FREQUENCY OF REASONS FOR RETIREMENT FROM ACTIVE PRACTICE

Reason	*Estimated Number*
Health	35
Change of occupation	79
Financially secure	26
Desire to rest	44
Marriage	97
Other	140

It is not improbable that in many instances more than one reason leads to the retirement of a medical practitioner from active practice.

28. In reply to a question regarding the difficulty in filling vacancies in employment for medical practitioners, the responses in the negative were precisely the same in number

TABLE 27: ANTICIPATED AGE OF RETIREMENT (ESTIMATED FREQUENCIES)

	46—50	51—55	56—60	61—65	66—70	71—75	76—80	Over 80	*Total*
Full-time employee ..	53	123	613	1,341	140	26	52	35	2,383
Percentage	2·2	5·1	25·7	56·3	5·9	1·1	2·2	1·5	100
Private practice	298	202	833	1,779	990	280	412	96	4,890
Percentage	6·1	4·1	17·0	36·4	20·3	5·7	8·4	2·0	100

as those in the affirmative. An estimated 666 persons reported that difficulties had been experienced in filling vacant posts for medical practitioners in their undertakings.

TRAINING AND QUALIFICATION

29. The age on qualification is indicated in the frequency of occurrences in Table 30.

TABLE 30: TABLE SHOWING AGE ON QUALIFICATION, ESTIMATED NUMBER OF MEDICAL PRACTITIONERS IN PRACTICE AT PRESENT, IN EACH AGE GROUP

	20—24	25—29	30—34	35—39	40—	*Not Stated*	*Mean Age*
Estimated No.	4,259	2,357	517	140	18	61	25 years
Percentage	58	32	7	2	0·2	0·8	

Almost three fifths of all medical practitioners have completed their training by the end of their twenty-fourth year, while a further third have qualified within the following 5 years; 10% qualify after reaching the age of 30 years. The average age on first qualifying in medicine was found to be 25 years.

THE SUPPLY AND DEMAND POSITION IN RELATION TO THE TRAINING AND EMPLOYMENT OF MEDICAL PRACTITIONERS

DEMOGRAPHIC CONSIDERATIONS

30. In the Appendices* are to be found the Demographic Tables of all the census districts of the Union with their population figures in respect of Whites, non-Whites and total population. In these there is also reflected the number of medical practitioners in each census area with an indication of the ratio of population to medical practitioner in respect of White persons, non-White persons and the total population in that area.

* These will be found in the original Report.

An examination of these Tables reveals the shortcomings of such a presentation in so far as there is nothing to prevent a medical practitioner living in Wynberg from practising in Cape Town, 8 miles away. Many do in fact do just that, and this example could be repeated a hundred-fold throughout the country. The same circumstances could be found in areas on or near inter-provincial boundaries such as at Parys, Volksrust, Fourteen Streams, Aliwal North and Umsimkulu, where a patient in one province might well be attended by a medical practitioner of another province and conceivably also in a hospital of another province across the border. Census areas, urban areas and provincial areas are administrative and political areas. They are not economic or socio-economic areas, although the supply of medical services is a socio-economic problem.

It has been suggested by Dr. Frank G. Dickinson, Director of the Bureau of Medical Economic Research of the American Medical Association, that a new technique other than the derivation of population : physician ratio is necessary, since this latter method applied even to economic or trading areas is not wholly satisfactory. He does not suggest a substitute.†

He does however point to the desirability of examining critically those areas with the highest and those with the lowest ratio of population to doctor.

† Dickinson, F. G. *Distribution of Physicians by Medical Service Areas.* A.M.A., Chicago, 1954.

TABLE 31: POPULATION RATIOS PER MEDICAL PRACTITIONER IN THE UNION (POPULATION FIGURES FOR S.W.A. NOT AVAILABLE)

Province	*No. of Medical Practitioners*	*Total Population*	*Total Population per unit*	*White Population*	*White Population per unit*	*Non-White Population*	*Non-White Population per unit*
Medical Practitioners:							
Cape ..	2,484	4,978,339	2,004	1,025,929	413	3,952,410	1,591
Transvaal ..	3,235	5,649,219	1,746	1,425,797	440	4,223,422	1,305
Natal ..	1,446	2,705,404	1,870	333,074	230	2,372,330	1,640
O.F.S. ..	477	1,274,169	2,671	303,702	636	970,467	2,034
Total ..	7,642	14,607,131	1,911	3,088,502	404	11,518,629	1,507

31. The crude population : medical practitioner ratio for the 4 provinces of the Union during 1958 is indicated in Table 31.

As will be seen, the crude population: medical practitioner ratio for the total population of the Union (S.W.A. not included) is 1,911.

32. By way of comparison, the population ratio figures for other countries which are the most recent available are indicated in Table 32.

TABLE 32: POPULATION RATIO FOR MEDICAL PRACTITIONERS IN OTHER COUNTRIES

Year	*Country*	*Population Ratio per Medical Practitioner*	*Source of Information*
1955	United States	750	A.M.A.
1955	United Kingdom	836	Willink Report
1948	Italy	961	Italian Legation
1947	New Zealand	1,021	N.Z. Dept. of Health Rep.
1947	Australia	1,061	Australian Dept. of Health Rep.
1948	Netherlands	1,360	Netherlands Legation
1948	Union of S.A.	2,386	S.A. Med. and Dental Council
1958	Union of S.A.	1,911	Present Survey

Many and varied aspects of these ratios are open for discussion. The political, social, economic and even the religious facets of life influence the whole approach of man to medical treatment and so to the problem under discussion.

33. The population ratios of all census areas in respect of medical practitioners are to be found in Table I, Appendix 16, of the original Report.

The population ratios of the 10 larger cities which are more densely populated are indicated in Table 33.

The population ratio for all races (i.e. the whole population of the cities) ranges from 422 in Cape Town to 2,227 in Germiston.

Local factors such as the percentage of White, Coloured, Indian and Bantu persons, have considerable influence on the data in addition to factors mentioned in paragraph 35.

34. In contrast to those centres discussed in paragraph 33, 10 rural centres with a minimal amount of medical coverage are shown in Table 34, which indicates the population ratios. They are not shown in any particular order other than by provinces alphabetically, as examples were chosen from each province.

In these areas, the population ratio for all races ranges from 6,223 persons per doctor in Marquard, O.F.S. to 59,610 in St. Marks in the Transkei.

35. As in the case of the cities discussed in the previous paragraph, the population: medical practitioner ratio should be considered in the light of the local and provincial circumstances with due regard to Bantu tribal customs as well as to political, social, economic and other considerations.

TABLE 33: POPULATION RATIOS PER MEDICAL PRACTITIONER IN DENSELY POPULATED CITIES OF SOUTH AFRICA

	Total Population	*White Population*	*Non-White Population*	*Doctors*	*Total Population per Dr.*	*White Population per Dr.*	*Non-White Population per Dr.*
Bloemfontein	171,788	67,729	104,059	119	1,443	569	874
Cape Town	393,567	107,923	285,644	932	422	115	306
Durban	600,866	184,245	416,621	983	611	187	424
East London	147,057	54,645	92,412	129	1,139	423	716
Johannesburg	1,088,871	407,412	681,459	1,670	652	244	408
Kimberley	94,601	27,088	67,513	54	1,751	501	1,250
Pietermaritzburg ..	162,810	43,082	119,728	140	1,162	307	855
Port Elizabeth	313,565	112,132	201,433	201	1,560	558	1,002
Pretoria	501,598	197,636	303,962	495	1,013	399	614

There are undoubted indications of a lack of a predetermined pattern in the distribution of medical practitioners in the Union: much further research is desirable into this ever pressing problem of the distribution of medical doctors in the community of the Union.

TABLE 34: POPULATION RATIOS PER MEDICAL PRACTITIONER IN 10 RURAL CENTRES WITH MINIMAL MEDICAL COVER

District	*Total Population*	*White Population*	*Non-White Population*	*No. of Doctors*	*Total Population per Dr.*	*White Population per Dr.*	*Non-White Population per Dr.*
Cape Province							
Barkly West	25,418	4,019	21,399	2	12,709	2,010	10,699
Glen Grey	69,369	525	68,844	2	34,684	262	34,422
St. Mark's	59,610	370	59,240	1	59,610	370	59,240
Natal							
Mapumulo	40,249	85	40,164	1	40,249	85	40,164
Nkandhla	50,790	205	50,585	2	25,395	103	25,292
Orange Free State							
Marquard	18,670	2,364	16,306	3	6,223	788	5,435
Vredefort	13,023	2,491	10,532	2	6,511	1,245	5,266
Transvaal							
Groblersdal	88,703	7,719	80,984	9	9,855	857	8,998
Wakkerstroom ..	18,001	1,356	16,645	2	9,000	678	8,322
Zoutpansberg ..	246,377	11,899	234,478	23	10,712	517	10,195

THE PRESENT SHORTAGE AND ANTICIPATED NEEDS IN RESPECT OF MEDICAL PRACTITIONERS

36. The estimated number of existing vacancies in salaried employment during 1958 was as follows:

Hospitals	411
Public Service other than Hospitals	135
Private Salaried Employment	35
Total in Salaried Employment	581

The total existing vacancies of 581 represents some 8% of all registered medical practitioners.

The forecast for additional requirements by 1965 in the various categories of salaried employment is as follows, in addition to existing shortages:

Hospitals	1,630
Public Service other than Hospitals (est.)	280
Private Salaried Employment (est.)	50
Total forecast requirements for salaried posts 1965	1,960

Allowing for an increase of 2% per annum in the population and thus for a like increase in the estimated number of private practitioners, an additional 600 private doctors will be required by 1965. Thus, on the above estimates, the anticipated requirements of newly qualified medical practitioners by 1965 will be as follows:

Existing known vacancies in employment	580
Forecast of additional requirements in salaried employment by 1965	1,960
Estimate of additional practitioners in independent or semi-independent practice	600
Wastage due to death and retirement ...	1,290
Total	4,430

Alternative Computation: Wastage. No information was directly available in relation to the number of medical practitioners who cease to practise their profession during their working life-span on account of death, early retirement, marriage, change of calling or other cause.

The number of registered medical practitioners on 1 January 1958, who had qualified in South African universities, was 5,277; registrations and restorations accounted for 341 additions during the ensuing year; and 144 were erased from the register.

The number of medical graduates in South African universities during the years 1922–1957 was 6,228. It follows that the wastage during this period was 6,228–5,277 or 951, which represents some 16%.

Put in another way, it required 6,228 graduates over a period of 36 years to allow of 5,277 being active in the profession at the end of that period; or 119 graduates to ensure 100 active members in the profession. If 0.5% per annum be the wastage due to death, the estimated number of the 951 dying during that period was 370, leaving 580 as wastage due to other causes, i.e. 9%.

As 40 years may be taken as a reasonable estimate of working life of medical men, 1/40 would therefore be the annual wastage through death or retirement of a normal age group.

Allowing for a proportionate wastage of 1/40 or 2.5% per annum for the 7 years ending 1965, i.e. 17.5% of the present number of 7,352 medical practitioners, the anticipated wastage will be 1,286.

In respect of the gross needs of the country in relation to the increase in the population, one may say that the present requirements will be increased by 15% within the ensuing 7 years, i.e. by 1965. Likely expansion estimates of medical services and personnel are likely to be governed by a number of factors in regard to which there is little certainty. Changes in medical techniques, new methods, new drugs as well as changes in the incidence of disease are all important factors impossible of assessment in their ultimate influence and thus quite unpredictable in their effects on the general position. No allowance is thus made for such possibilities.

The estimates of population for the Union during the years 1958–1965 are as follows:

1958	... ...	14,418,000
1965	... ...	16,178,000

Based on proportionate growth of the number of 7,352 medical practitioners in 1958 and making no allowances for increased longevity by 1965, the number of medical practitioners anticipated as being required by 1965 would be:

$$7{,}352 \times \frac{16{,}178}{14{,}418} \text{ or } 8{,}250.$$

This represents an increase in the number of medical practitioners of 900. Adding the immediate vacancies to this, i.e. 580 (600 in round numbers) an additional 1,500 medical practitioners is the minimum additional number required by 1965.

Using the same figure for wastage during the 7-year period as was determined before, i.e. 17.5% of the existing number, the wastage is estimated at 1,290.

On this basis the minimum requirement would be 2,800 by 1965.

Allowing for a wastage through retirement or other causes excluding death, of 9%, the number of graduates required by 1965 will be 3,050.

Reference to the Graph in Fig. 1* will show that, by extrapolation, the estimated number of medical practitioners at the end of 1964 will be 11,250, an increase of 3,900 over the figure for the end of 1957.

Allowing for a small wastage, the requirements before 1965 estimated in this manner will be in the region of 4,000.

The most conservative forecast is that only 3,500 additional medical practitioners will be required by 1965, the least conservative estimate approaches 4,500. Between these two the likely true estimate is to be found.

THE SUPPLY OF GRADUATES FROM THE UNIVERSITIES

38. From the survey of trends in the universities in Part III of this Report, it is deduced that the estimated numbers of qualified medical practitioners to graduate during the 7-year period ending in 1965 will be as follows:

Year	*No. of Medical Graduates*
1959	270
1960	271
1961	272
1962	273
1963	274
1964	275
1965	276
	1,911

As the estimated accumulated needs of the country will be between 3,500 and 4,500, there appears to be need for considerable concern in this connexion. Although an appreciable number of South African citizens qualify abroad and immigrant medical practitioners continue to arrive, it is hardly to be expected that these groups will meet the unmet needs for medical practitioners in the country.

* In the original Report.

OESOPHAGEAL CANCER IN AFRICANS

A NOTE ON THE INCIDENCE IN THE DURBAN AREA

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Carcinoma of the oesophagus is one of the commoner cancers amongst Africans in South Africa[2, 8, 15] and clinical experience at King Edward VIII Hospital is in accord with this.

The records of 126 cases of carcinoma of the oesophagus admitted to this hospital for treatment from 1952 to 1959, a period of 7 years, have been analysed with regard to race, sex, age, level of tumour and histopathology. Some few cases are known to have been missed during this period, but it is unlikely that these untraced cases will be selective in respect of the aforementioned factors. The blood groups of patients in this series, together with those of 33 further cases from Edendale Hospital, Pietermaritzburg, were analysed.

The diagnosis of carcinoma of the oesophagus was made by biopsy or post-mortem examination in 98 cases (78%). The remaining 28 cases were included as carcinoma on the other evidence available. In 8 of these (6.8%) a biopsy was done, but the report could not be traced. The record of the operative findings and the management of these cases leave little doubt about the nature of the lesion. A further 4 cases were submitted to operation when either oesophagectomy was performed, or the cases were recorded as inoperable, there being no doubt clinically as to the diagnosis. In addition, all cases without histological proof had been submitted to barium swallow X-ray examination, and all had reports typical of carcinoma of the oesophagus.

There were 117 cases in Africans and 9 cases in Indians. The Indian cases comprised 4 males and 5 females out of 58,448 admissions, suggesting that carcinoma of the oesophagus is less frequent in this group. The numbers are too few, however, to be of value.

The subsequent analysis is confined to Africans living in Durban, and other parts of Natal, who elected to come to this hospital for treatment. In this period a total of 352,465 Africans were admitted.

SEX AND AGE

Davies[5] believes that Africans can usually estimate the ages of their fellows fairly accurately, particularly if they are of the same race or tribe; the patient must be seen and questioned by trained African staff, and the age thus obtained is almost always accurate in placing the patient in the correct decade. This has been the method used here where a patient has been unaware of his chronological age. It seems justified to use the age figures for calculating the age incidence.

There were 102 male cases admitted with an average age of 54 years, and 15 female cases with an average age of 49 years, giving a male : female ratio of 6.7 : 1. The ratio in other series is given in Table 1.

TABLE 1: SEX RATIO IN CARCINOMA OF OESOPHAGUS
A = African
B = British White

Author	*Area*	*Race*	*Male* : *Female*	*No. of Cases*
Present series	Natal	A	6·7 : 1	117
Wainwright [15]	Natal	A	3·75 : 1	119
Higginson [9]	Transvaal	A	14 : 1	15
Higginson [9]	Transvaal	A	13·7 : 1	88
Katz [10]	Transvaal	A	11 : 1	120
Burrel [2]	Eastern Province	A	2·6 : 1	104
Davies [5]	Kampala (Uganda)	A	2·9 : 1	39
Raven [11]	England & Wales	B	1·73 : 1	2,325

AGE GROUPS

Table 2 shows the percentage incidence in various age groups in the present series and that of Raven's collected series in Britain.

TABLE 2: AGE DISTRIBUTION OF CARCINOMA OF OESOPHAGUS (PERCENTAGE)

	Present Series		*Males & Females*
	Males	*Males & Females*	*Raven*[11]
20—29	3	3	0
30—39	3	4	0·6
40—49	30	29	4·5
50—59	42	41	13·5
60—69	13	14	27·1
70—79	9	9	39
Over 80			15·3

Fig. 1 demonstrates that the peak incidence of carcinoma of the oesophagus occurs at a much higher age in England and Wales, than in the present series.

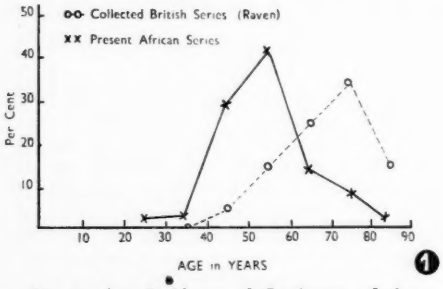

Fig. 1. Age Incidence of Carcinoma of the Oesophagus.

SITE OF TUMOUR

The placing of the tumour into upper third (down to 20 cm. from the incisor teeth), middle third (20 to 33 cm.) and lower third (33 to 40 cm.) was carefully estimated from the oesophagoscopic findings and from the barium swallow examinations. In 3 cases no accurate record of level was available, but their average age of 58 years conformed to the average age of the other cases. Particular emphasis was placed on the level of the upper end of the tumour. The distribution of the level of the growth in both sexes is compared with the levels in other series (Table 3). The figures confirm other reports that two thirds of these cancers in Africans occur in the middle third of the oesophagus.

HISTOLOGY

Of the 83 African cases (71%) in which the histology was available, 93% were squamous carcinomata (Table 4).

BLOOD GROUPS

Table 5 shows the blood groups of 82 patients with histologically proven oesophageal carci-

TABLE 5: BLOOD GROUPS IN CARCINOMA OF OESOPHAGUS IN AFRICANS (PERCENTAGE)

	Blood Group				
	O	A	B	C	*Total*
No of Cases of Carcinoma Oesophagus	33	27	19	3	82
Percentage	40·2	33	23·2	3·7	
Control Group[4] (6206 Cases)	44·4	28·5	21·9	5·1	

TABLE 3: PERCENTAGE INCIDENCE OF CARCINOMA OF OESOPHAGUS IN THREE SITES IN AFRICANS COMPARED WITH THE INCIDENCE IN JAPAN AND THE UNITED KINGDOM.

	Natal	*Eastern Province*[2]	*Transvaal*[10]	*Transvaal*[9]	*England & Wales*[3]	*Japan*[14]
Upper Third	7	14	26	13	12	30
Middle Third	69	56	64	59	47	50
Lower Third	24	30	10	28	41	20

TABLE 4: HISTOPATHOLOGY IN 87 CASES OF CARCINOMA OF OESOPHAGUS IN AFRICANS COMPARED WITH TRANSVAAL AFRICANS AND JAPANESE—IN PERCENTAGES

Histology	*Present Series*	*Transvaal*[9]	*Japanese*[14]
Squamous Carcinoma	93	97	89·2
Anaplastic Carcinoma	3	0	7·6
Adenocarcinoma	3	3	3·2

noma; 49 of these cases were from the present series of 126 cases and 33 cases were from Edendale Hospital, Pietermaritzburg.

DISCUSSION

Burrell,[2] reviewing 104 hospital cases of carcinoma of the oesophagus in the Eastern Province, showed that the disease was 7 times commoner in Africans than in White people in the same area. It was responsible for 14.7% of all cancers in the African in that area and careful analysis showed an extremely high incidence in one particularly location.

Higginson and Oettle[8] reported an incidence of oesophageal cancer in Johannesburg African males, 2.74 and 2.6 times that expected in United States Whites and Negroes respectively. Wainwright and Roach[15] analysed the biopsy and post-mortem material from Natal (1950-1956) and showed the incidence of oesophageal cancer to be 6.1% of all cancers occurring in Africans. Davies[6] reported an incidence of 3% for this neoplasm from Kampala, Uganda, compared with a 5.63% incidence of all male cancer in London.[7]

admissions of each group the frequency in Africans is twice that in Indians.

The male preponderance of 6.7 : 1 differs from Wainwright and Roach's figures for Natal mainly because their necropsy and biopsy material was drawn in part from many outlying country hospitals.

The sex ratio in this series, as well as in Wainwright's, approximates more closely to that of Burrell than to the figures in the Transvaal, suggesting that the disease is not as unusual among African women as has been reported.

Higginson and Oettle found that 12 of their 14 cases were over 45 years of age, and suggested that the sharp rise in incidence with age might indicate that in the older male population carcinoma of the oesophagus formed as large a problem as liver cancer in the younger groups. However, in this series the average age of carcinoma of the oesophagus was 54 years, after which the incidence fell sharply.

There does not appear to be any marked variation in overall age incidence between males and females.

TABLE 6: INCIDENCE OF CARCINOMA OF OESOPHAGUS

Country	*Male Rate*	*Adjusted*	*Female Rate*	*Adjusted*
U.S.A. (White)	3·9	(3·9)	1·1	(1·1)
U.S.A. (Negro)	7	(5·3)	2	(1·4)
Union of South Africa (White)	4·9	(3·8)	1·6	(1·2)
England and Wales	6	(7)	2·7	(3·7)
Switzerland	17·5	(18·2)	2·5	(2·8)

The crude death rate before adjustment for age is given in each case in brackets.

Segi *et al.*,[12] in a wide geographic survey of mortality statistics adjusted for age to that of the White population of the U.S.A. in 1950, gives the annual incidence per 100,000 population as in Table 6. The figures for Switzerland are included as it has the highest incidence in the countries quoted. By contrast, Burrell[2] gives a calculated rate per 100,000 per annum in a particular localized area of East London of 526.3 in those males over the age of 65 years.

The incidence of the disease in this area cannot be assessed owing to the wide area drained and the lack of accurate demographic statistics, but in relation to the number of

The distribution of the sites of the tumours was unaffected by age. In the 15 female cases there were no upper third tumours and a higher proportion of middle third growths than in men (Table 7). The average ages for

TABLE 7: SITUATION OF CARCINOMA OF OESOPHAGUS

Site	*Male*	%	*Female*	%
Upper Third	8	8	—	—
Middle Third	66	67	12	80
Lower Third	25	25	3	20
Total	99		15	

the 3 sites were within narrow limits the same in males; in females the middle third growths occurred at a slightly younger age (Table 8).

The upper third carcinomata formed 8% of the male cases, somewhat lower than in Burrell's[2] and Katz'[10] series. Middle third growths occurred in 67% of the men, similar to the Eastern Province and Transvaal figures, and higher than in England and Wales and Japan (Table 3). The proportion of middle third growths in women was 80%. Lower third growths occurred in 25% of men and 20% of women (Table 7).

SUMMARY

1. One hundred and twenty six cases of carcinoma of the oesophagus occurring in African and Indian patients are analysed with regard to sex, age, level of tumour and histopathology.

2. The blood groups of 49 cases in this series together with 33 cases from Pietermaritzburg show no significant difference from a control group.

3. There appears to be no particular locality in Natal from which a large number of cases of carcinoma of the oesophagus were admitted.

TABLE 8: AGE DISTRIBUTION OF CARCINOMA OF OESOPHAGUS IN THREE SITES

	Male Cases	*Average Age (Years)*	*Female Cases*	*Average Age (Years*
Upper Third	8	54	—	—
Middle Third	66	53	12	48
Lower Third	25	54·5	3	55
Total	99	54	15	49

BLOOD GROUPS

Billingham in Australia[1] found that the ABO groupings in a series of 119 cases of squamous carcinoma of the oesophagus did not differ significantly from those of the general population. Our findings in 82 cases are compared in Table 5 with a control series of blood groups in Africans from this area, and it will be seen that 33% belong to Group A (control 28.5%) with a corresponding drop in Group O to 40.2% (control 44.5%). These differences are not statistically significant, p being less than .5 on the Chi square test. Groups A and AB were about the same in both groups.*

DISTRICT OF ORIGIN

With Burrell's findings in mind, the local and tribal addresses of patients were analysed, but there appeared to be no abnormally heavy concentration of cases from any particular locality in Natal from which these cases were admitted.

* Since the submission of this paper, Aird *et al.* (Brit. Med. J., 1960, **1**, 1163) have analysed 610 cases in which a trend towards an increased incidence in patients belonging to Group A is shown.

Thanks are due to Dr. S. Disler, Medical Superintendent, King Edward VIII Hospital, and Dr. Adams and Dr. T. Coetzee of Edendale Hospital for permission to study case records.

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ABDOMINAL HYDATIDS

TWO UNUSUAL CASES

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Howard Boyd Graham (of Melbourne) in the Listerian Oration in 1953, pointed out that nothing of a medicinal nature had as yet been found to have a significant effect in the treatment of hydatid infestation.

Until the end of the 19th Century, at least, there was confusion about the entity of these cysts. Tapping operations were usual.[2] The cyst was punctured with a fine trocar and some of the fluid withdrawn.

Owen Reese,[12] 1848, introduced the use of trocars (Fig. 1B), increasing in size from that used in the first puncture until, on about the third occasion, a gum elastic sound could be inserted into the orifice. It seems certain that pus was obtained regularly at the third puncture, and it was believed that 'limpid liquid' signalled the death knell of the hydatid cyst.

Cruveilhier,[2] a pathologist, deprecated the general employment of tapping techniques unless it was proved that adhesions existed, and that the tumour was pushing outwards.

In 1859 Moissenet[11] provided a summary of the situation. He concluded that puriform hydatid fluid leaking into the peritoneum induced inflammation which was nearly always fatal. It was desirable to empty a cyst completely whenever puncture was undertaken because even capillary puncture was liable to have that very undesirable sequel.

In 1863, at the Melbourne Hospital, Beanie,[2] Barker,[2] Thomas[15, 16] and Motherwell[2] all tapped hydatid cysts without anaesthesia. Six tappings were included in 189 operations in that year.

The improvement in surgical technique appears to be that after the usual procedure had been carried out, the opening was enlarged from side to side sufficiently to allow a sponge tent to be inserted (Fig. 1C). On removal of the tent a few days afterwards the cyst was expected to be found bulging into the wound. It was to be twisted out steadily and slowly in stages by the house surgeon. 'Unbidden guests are often welcomest when they are gone.'

Symons' operation,[2] known as the double puncture and incision (Fig. 1D), was introduced in France in 1886. The principle was that the cyst, having been destroyed by suppuration, should be removed through an incision made from the point of insertion of one cannula to that of the other. It would be found that the incision would pass only through adhesions and that the hydatid cyst would be extracted safely through the opening. Symons' operation was abandoned in favour of that of Lindeman,[2] of Hanover, first performed in 1871. Lindeman incised the parietes, exposed the sac, opened it and stitched it to the abdominal wall, all under antiseptic precautions.[16] Saenger[14] modified this procedure (Fig. 1E) by securing the cyst to the lips of the external wound before making the incision into it. Operations of this type became known as 'marsupialization' of hydatid cysts.

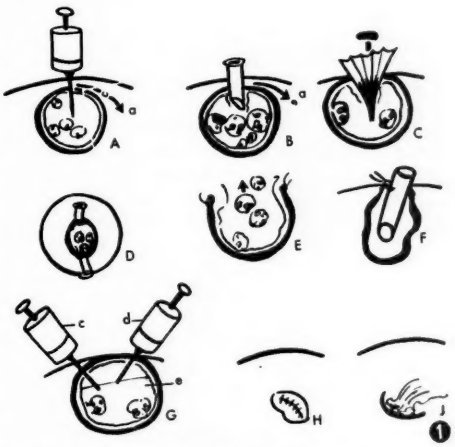


Fig. 1. Procedures used in hydatid cysts.
A: Tapping by aspiration.
(a) Spill-over of fluid.
B: Trocar tapping. (Owen Reese, 1848).
C: Tent drainage.
D: Symons' operation (1886). Double puncture, then incision between.
E: Lindeman and Saenger marsupialization. (Sac sutured to parietes).
F: Delbet and Posadas (1896): drainage after evacuation of contents.
G: Dew (1928) formalin injection(s). Jidejian (1957) absolute alcohol injection. (c) and (d); (e) toxic fluid.
H: Hamilton Russell closure after evacuation.
J: Jidejian. Use of omentum to fill cyst cavity after evacuation.

John Davies Thomas,[15] of Adelaide, published a book in 1884 on hydatid infestation, which remains a classic. Harold Dew[5] of Melbourne published his masterpiece in 1928.

James Graham,[9] of Sydney, in 1891 denounced all the tapping and aspiration operations and gave a clear warning about the danger of puncturing a hydatid cyst except in the course of a planned operation. Exploratory puncture for diagnostic purposes, even with a hypodermic needle, had in his own experience repeatedly caused grave unexplained shock, and had proved fatal. Graham advocated the use of operations of the Lindeman type, which have decidedly given the best results.

Formolage was introduced by the French surgeons (Fig. 1G).[5] It is based on the fact that a weak formulin solution will kill scolices and fix brood capsules in a few minutes. Some surgeons replace portion of the cyst contents with formalin solution and wait a few minutes before going on with the operation. Others swab the cyst with formalin after removal of the contents. It was usual for many years to clear the cyst and its contents from the sac and then perform formolage on the sac in case any reproduction elements were left behind.

Delbet,[4] of France, devised what was known as the 'closure' operation in 1896. It is often linked with the name of Posadas of South America (Fig. 1F). After removal of the cyst and its contents and thorough cleansing and formolage, the sac space was obliterated, usually around a drainage tube which could be shortened from time to time and be removed when it ceased to act as an outlet for the fluid. Bond[3] (1891) dropped the sac back into the wound when dealing with simple uncomplicated abdominal cysts.

Hamilton Russell[13] (1895) made several contributions (Fig. 1H). He closed the hydatid sacs after they had been filled with normal saline solution. He held that thereby any noxious substances present would be diluted.

Jidejian, of Beirut, in 1957 described the injection of absolute alcohol in his cases, and sometimes 40% formaldehyde (Fig. 1J). Jidejian mentions 2 other methods of treatment of hydatid cysts: to fill the cavity with omentum after the cyst has been emptied. A similar omental pack is used when the raw liver area requires to be packed after removal of a cyst in its entirety. In this case, 3 hydatid cysts were removed completely as it was possible to do so without injuring vital structures, and these were mostly purely omental or mesenteric hydatids.

By the turn of the century an important new clinical aid became available. Röntgen had discovered X-rays[1] and radiology developed rapidly to allow precision in the diagnosis and localization of hydatid cysts and in the aftermath of surgical interference or of accidents to the cysts. During the past 50 years considerable progress has been made in the assistance that can be rendered by scientific laboratory workers. In 1922, N. Hamilton Fairley reported[7, 8] that the presence of hydatid antigen could be demonstrated quantitatively by fixation of complement. Careful assessments of its clinical value have been supplied.[6, 10] In 1911, Casoni of Italy elaborated an intradermal test for the presence of hydatid antigen in the skin.

TWO CASES OF HYDATID DISEASE OF THE ABDOMEN

Students are generally taught that Echinococcus cysts of the abdomen are usually not serious—that they calcify and die, and rarely give rise to any real problems. Involvement of the kidney or the lung, the brain and the bones, and the many other areas including the heart, occasionally require urgent surgery, with removal of the cysts or organs.

It has also been taught that the 3 layers of these cysts (Fig. 2) need to be studied: the

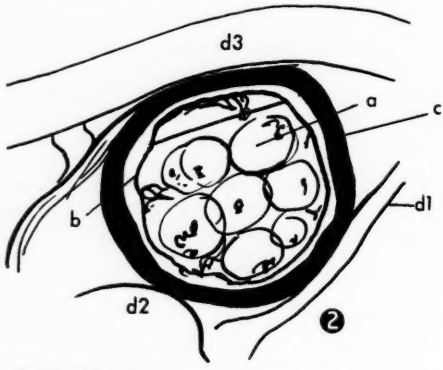
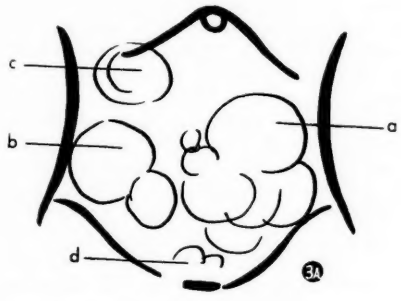


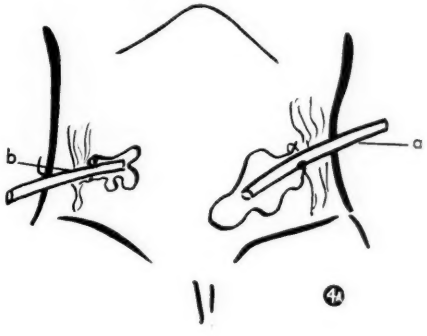
Fig 2. Hydatid cyst.
(a) Brood capsules and scolices in pure white innocuous-looking fluid which is intensely irritating and toxic.
(b) Germinal layer (also called endocyst, granular layer, parenchymatous layer).
(c) Laminated membrane (dense white impervious membrane).
(d) Ectocyst (also called adventitious capsule, the tissues of the host encapsulating the cyst).
(d1). Parietal peritoneum and large vessel.
(d2). Prostate.
(d3). Bowel and mesentery.

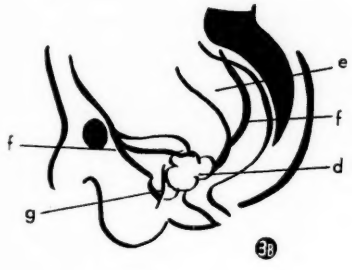
endogeneous layer containing the scolices and brood capsules, the laminated layer impervious to noxious agents, and the exogenous layer, or layer of the adventitious tissues of the host. Pathologists make a point that the excision should be between the laminated layer and the exogenous layer but, as will be shown, this is often quite impossible. It is also known that the fluid obtained from these cysts is often highly dangerous when spilled in the abdominal cavity. It is not only very irritating and toxic, producing shock, but also contains hundreds of scolices which can develop into further cysts.

CASE 1

A Native aged 30 years was seen on 16 March 1959. At that time he had a history of abdominal pain for about a week. The pain came on suddenly, with the development of fever, and a pulse rate between 100–120 per minute. There was obvious acute peritonitis with rigidity, positive rebound tenderness, visible peristalsis with vomiting and distension, obviously from intestinal obstruction, with a superadded acute inflammatory process. Deep to the resistance in the abdomen could be felt what appeared to be rounded masses







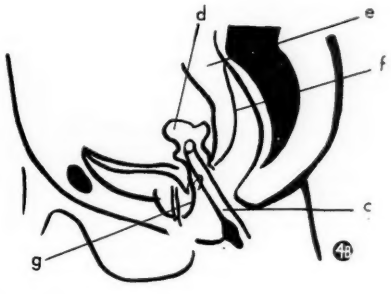


Fig. 3*A*: Appearance of Abdomen (Case 1).
(a) Large hydatid cyst in left iliac fossa adherent to parietes, bowel, mesentery.
(b) Right iliac fossa cyst adherent to caecum, small bowel, parietes.
(c) Cyst in omentum.
(d) Cyst on prostate.

Fig. 3*B*: Diagram of pelvis.
(e) Rectum.
(f) Peritoneal reflection.
(g) Prostate.

Fig. 4*A*:
(a) Catheter into emptied and treated cyst through omentum, L.I.F.
R.I.F. Cyst treated similarly.

Fig. 4*B:*
(c) Catheter into supra-prostatic cyst.
(d) Cyst.
(e) Rectum.
(f) Peritoneal reflection.
(g) Prostate.

of large size, but ill-defined at this stage. On rectal examination, there was a firm rounded nodule in Douglas' pouch, rather more rounded and regular than a carcinomatous deposit. Investigations at this stage showed on X-ray numerous small, calcified structures in the abdomen and fluid levels in the bowel; the white cell count was 22,800 leucocytes per c.mm.; the haemoglobin was 15.5 g. %; the ESR was normal; 7.1 g. % total proteins (3.2 g. % albumin; 3.9 g. % globulin).

The hydatid complement fixation test was positive.

The patient's condition improved over 6 days on penicillin (1 million units daily in divided doses), gastric suction and correction of fluid balance. The intestinal obstruction settled and the patient's abdomen became soft and was then readily palpated, revealing numerous large masses, rounded, not particularly tender. The diagnosis of hydatid cysts was now certain.

Proceedings at Operation. Numerous cysts were apparent at laparotomy (Figs. 3 and 4). One enormous retroperitoneal and mesenteric cyst occupied the left loin and the iliac fossa, extending across the midline, with small bowel plastered on its wall. Attempts to remove this cyst were futile, as bleeding occurred the moment the normal tissues of the patient were dissected from the cyst. The cyst was isolated by swabs, punctured and 10% formalin injected. The same was done to a large cyst in the right iliac fossa which was covered by caecum, ascending colon and terminal ileum plastered to the cyst wall. After about 5 minutes, the surrounding bowel having been packed off and the cyst completely isolated, the contents were aspirated and the cyst entered. The endogenous cyst was removed completely, and the remaining laminated layer swabbed with formalin and washed out with saline on 2 or 3 occasions. The excess cyst was excised and a catheter inserted into the cyst. The laminated layer was closed around the catheter with a catgut suture holding the catheter into the cyst. The catheter was then led through omentum and was allowed to drain into a bottle.

A similar procedure was performed on the large hydatid cyst in the right iliac fossa.

Several hydatid cysts in omentum and others not firmly adherent to bowel or liver were excised.

The post-operative course was uneventful, and the catgut stitch dissolved on the eighth day, allowing the catheters to be removed. Drainage from the tracks ceased almost immediately after this.

At this point it is of interest that Jidejian mentions that drainage externally took several months to heal in his case, the average being 37 days. One can only conclude that the cyst was incompletely drained, or that haematoma or infection occurred in the cyst, or that the drainage tube was left too long, as once the track is organized (in about 6 days) and there is no discharge, there is no further need to keep the tube in longer than the catgut stitch can hold it in.

Follow-Up. The subsequent course in this patient was very satisfactory except for the fact that, on rectal examination, the hydatid cyst was enlarging in Douglas' pouch. At the abdominal operation this cyst had been examined and was found to be completely walled off by bowel above and was inaccessible without endangering bladder or bowel in the process.

Treatment of Hydatid Cyst by Marsupialization into the Rectum. When the patient was fit for a further operative procedure, the cyst and mucosa were caught in 2 stitches (using a proctoscope); this permitted retraction, in 2 places, towards the anus. Thin retractors were then used and they allowed adequate exposure. The cyst was aspirated and formalin injected. Then an incision was made into the cyst. A catheter was stitched into position. The fluid escaped together with some cysts. About the sixth post-operative day the catheter fell out, and thereafter the patient passed hydatid cysts in his stools for several days.

On re-examination 3 weeks later, the swelling of the cyst was represented as a slight thickening behind the prostate. No further discharge was seen on sigmoidoscopic examination, and the swelling has not recurred.

Discussion. This case presents several unusual features. Firstly, the initial presentation was as an acute abdomen, obviously from a rupture of one of the hydatid cysts. The number of hydatid cysts in the peritoneal cavity was quite extraordinary, and the size of the cysts was a feature. The large cyst in the left iliac fossa was the size of a football, and the presence of intestinal obstruction on admission augured unfavourably for the future. At laparotomy the finding of the bowel stretched out on the large cysts, obviously not removable without extensive resection of bowel and vital vessels and parietes, presented problems of management of the cysts and marsupialization using catheters through omentum. Early removal of these drains was not associated with prolonged morbidity. The drainage of the hydatid cyst per rectum seems to have been the easiest and most effective way

of dealing with this extremely difficult, enlarging cyst, and the insertion of a catheter into the cyst allowed a fistula to develop between cyst and rectum which permitted discharge of the remaining cysts.

CASE 2

S., a Bantu patient aged 40, was admitted to hospital on 19 May 1959, with a history of repeated attacks of vomiting and right epigastric pain over the last year. With each attack he had been pyrexial and sometimes slightly jaundiced. His doctor found that he was guarded with severe tenderness on pressure over the gall bladder, and with a positive Murphy's sign.

On admission, examination showed the same clinical signs and X-ray showed no filling of the gall bladder. Because of the suspicion in such cases, which turn out to be something other than gall bladder diseases in the Bantu (such as a localized amoebic abscess, malignancy, bilharzial cirrhosis or hydatids) further investigations were done. The hydatid complement fixation was positive. Straight X-rays showed no evidence of calcification in the abdominal area, but an 8% eosinophilia was present.

At laparotomy, through a midline incision the gall bladder was found to have a large thickened Hartmann's pouch, and something soft could be felt inside it. The common bile duct was somewhat dilated. There was no evidence of cirrhosis or carcinoma of the liver, and the pancreas and the duodenum were perfectly normal; but high up on the stomach at the oesophageal opening and fixed to the liver, diaphragm and stomach, was a white, hard, firm area which, on inspection appeared to be an old-standing hydatid cyst. This was aspirated and no typical clear fluid was obtained, only slightly purulent material. Formalin was injected, the cyst wall opened, debris and pigment and a few pigmented brood capsules were sucked out, and then some bile escaped.

A catheter was introduced into the emptied cyst after it was cleared out and treated with formalin, and the catheter was fixed with a catgut stitch and led through omentum to present in the left hypochondrium.

Thereafter, the gall bladder was opened, pigment mud was found, and some small pigmented hydatid cysts, proved so by histological examination. The gall bladder was removed and the common bile duct opened. The bile was relatively clear, but a stenosis was present at the lower end of the common bile duct (Fig. 5). This was dilated and a T-tube inserted.

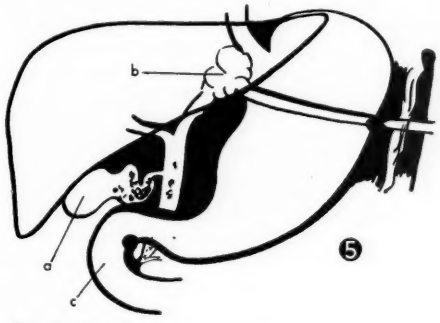


Fig. 5. Case 2.
(a) Hydatid cysts, brood capsules and scolices in gall bladder causing acute cholecystitis and gall bladder colic.
(b) Irremovable degenerated hydatid cyst in the left lobe of the liver at the cardio-oesophageal junction. (Drained by catheter through omentum after evacuation of contents and drainage of bile).
(c) Stenosis of sphincter of Oddi.

The post-operative course was satisfactory. The patient suffered from some jaundice, following transfusion. The drainage of bile was considerable from both tubes. The drainage tube into the hydatid cyst was intended to be removed after about 10 days, but the holding stitch did not dissolve to allow removal of the catheter for about 18 days. However, before this, from about the 10th day, both tubes were clamped and the patient had coloured stools without pain or discharge from around the tubes. The tube into the hydatid cyst was removed on the 18th day, and healing from this occurred within 2–3 days without any further discharge. During this period the T-tube into the common bile duct was allowed to drain freely and was then itself removed shortly afterwards. No further drainage of bile occurred after removal of the T-tube.

DISCUSSION

The literature on this type of case is mainly to be found in Spanish, Italian, Russian, French, New Zealand and Australian journals.

Rupture into the biliary ducts is quite common, and fistulae into the lung and even the skin, are also described. Common bile duct obstruction has been reported in the Spanish literature as, too, pyloric obstruction, stenosis of the sphincter of Oddi, subphrenic

abscess, massive haematemesis, biliary peritonitis and intraperitoneal haemorrhage.

The presence of acute cholecystitis as the initial clinical syndrome is unusual. One case in the Spanish literature is mentioned of hydatids presenting as cholecystitis and gallstones, but no mention is made of the presence of hydatid cysts in the gall bladder.

SUMMARY

Two unusual cases of Echinococcal cysts of the abdomen are described, the first presenting as an acute abdomen from rupture of a cyst.

The methods of dealing with these irremovable cysts is described. One was treated per rectum.

A case of hydatids causing acute cholecystitis and stenosis of the sphincter of Oddi, is also recorded.

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MORTALITY FROM CARDIOVASCULAR DISEASES

A recent WHO *Epidemiological and Vital Statistics Report*[1] was devoted mainly to mortality from cardiovascular diseases, and contains statistical data from selected countries for the years 1954–1956.

In accordance with international usage, the term *cardiovascular diseases* includes a number of diseases of the heart and blood vessels listed in the *International Statistical Classification of Diseases, Injuries, and Causes of Death.* They are grouped as follows:

1. Cardiovascular syphilis;
2. Vascular lesions affecting the central nervous system;
3. Rheumatic fever;
4. Chronic rheumatic heart disease;
5. Arteriosclerotic and degenerative heart disease;
6. Other diseases of the heart;
7. Hypertensive heart disease;
8. Hypertension without mention of the heart;
9. Diseases of arteries;
10. Diseases of veins and other diseases of the circulatory system;
11. Congenital malformation of the circulatory system;
12. Symptoms referable to the cardiovascular and lymphatic systems.

In the selected areas, with the exception of Japan, cardiovascular diseases cause between 55.4% (white population of the USA) and 44.6% (Netherlands) of all deaths. In Japan this proportion is as low as 29.5%.

The highest crude death rates are those of Scotland and England and Wales (648.7 and 601.7 respectively) and the lowest—with the exception of Japan (235.7)—is that of the Netherlands (338.9). These crude death rates are, of course, not comparable, owing partly to differences in the population structure; age and sex specific death rates, however, show that the lowest rates are those of the Netherlands and Denmark, the highest those of Scotland and England and Wales. The Japanese age specific death rates are higher in every age group below 75 years than those of Denmark and the Netherlands and, in fact, have the same pattern as in other areas. Mortality from cardiovascular diseases per 100,000 population is shown in Fig. 1.

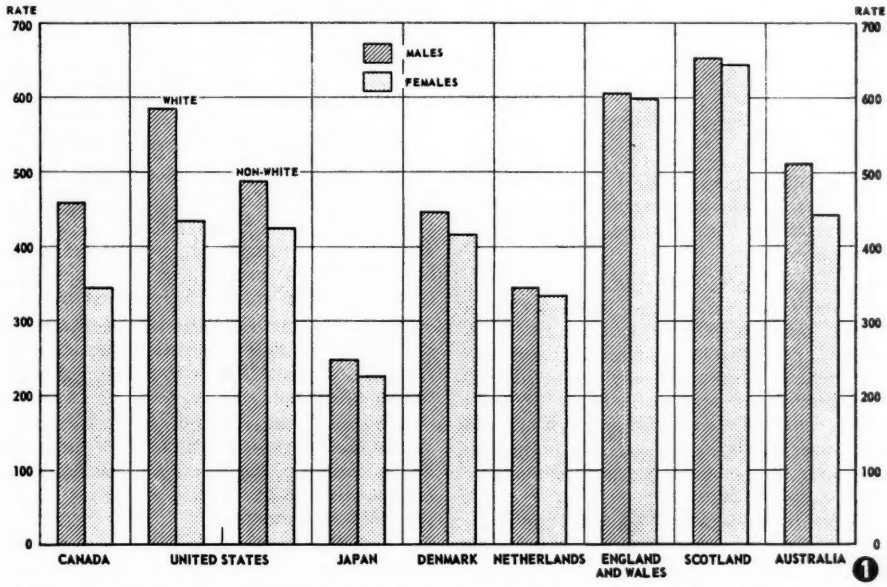
Table 1 shows the median death date for each component of cardiovascular deaths in the selected countries during the period 1954–1956.

Arteriosclerotic and degenerative heart disease accounts for the highest median mortality rate, causing on an average more than half the deaths due to all cardiovascular

1. *Epidem. vital Statist. Rep.*, 1959, **12**, No. 10.

diseases. Vascular lesions affecting the central nervous system come next in importance. These two groups cause on an average more than 78% of all deaths attributed to cardiovascular diseases.

MORTALITY FROM CARDIOVASCULAR DISEASES, PER 100,000 POPULATION



Arteriosclerotic and degenerative heart disease is responsible for the greatest number of deaths from cardiovascular diseases in all the countries selected, with the exception of Japan. It accounts for 38.5% of all cardiovascular deaths in the non-white population of the USA and 58.8% in the white population of the same country. In Japan it accounts for 18.6%. The death rate in Japan is as low as 43.9 per 100,000 population, while in the other countries it ranges between 348.8 (Scotland) and 160.1 (Netherlands). The great discrepancy between Japan and the other countries may be real, or simply due to differences in medical concepts, diagnostic skills, disease classification and certification practices, or to the local interpretation of coding rules. In Japan vascular lesions affecting the central nervous system replace in importance arteriosclerotic and degenerative heart disease.

TABLE 1

Cause of Death	*Median Death Rate*
Arteriosclerotic and degenerative heart disease	226.6
Vascular lesions affecting the central nervous system	119.9
Diseases of arteries	24.5
Hypertensive heart disease	24.1
Other diseases of the heart	19.3
Chronic rheumatic heart disease	8.9
Other hypertensive disease	8.4
Congenital malformation of the circulatory system	5.6
Diseases of veins and other diseases of the circulatory system	2.8
Cardiovascular syphilis	1.2
Rheumatic fever	0.8
Symptoms referable to the cardiovascular and lymphatic systems	—

The death rate increases with age in all countries. Females have a lower death rate than males in every age group, especially in the middle years of life.

Vascular lesions affecting the central nervous system cause between 20.4% and 28.9% of all deaths due to cardiovascular diseases in the countries selected, with the exception of Japan, where the proportion is as high as 59.0% (though the death rate, 139.0, is not the highest). This proportion indicates the relative importance of this cause of death in Japan, where such lesions are predominantly haemorrhagic. Although it has not been definitely proved, cerebral haemorrhage is believed to occur usually in hypertensive persons at sites where arterial walls are weakened by

disease. Whether or not cerebral haemorrhage in Japan is usually the result of cerebral arteriosclerosis is not known, but death rates for arteriosclerotic and degenerative heart disease, hypertensive heart disease, diseases of arteries and other diseases of the circulatory system are much lower in Japan than in the other countries selected. On the other hand, death rates for symptoms referable to the cardiovascular and lymphatic systems are many times higher in Japan than in the other countries. It would appear to be worth while to compare methods of certification, diagnostic criteria and coding practices in Japan with those of other countries as a preliminary to any inquiry into the meaning of the differences between Japanese statistics and those of the other countries.

Death rates for vascular lesions affecting the central nervous system range, in the countries selected, between 90.6 (Canada) and 187.3 (Scotland) per 100,000 population. The median rate progresses with age from 1.8 per 100,000 population in the age period below 35 years to 2,072 in the age group 75 years of age and over. Age specific death rates are highest in general for the non-white population of the USA and for Japan.

Diseases of Arteries. This cause of death is responsible for between 3.6% (non-white, USA) and 6.6% (Netherlands) of deaths due to cardiovascular diseases in the countries selected, with the exception of Japan, where the proportion is 1.6%.

Hypertensive Heart Disease. It is almost impossible to arrive at an accurate estimate of the total number of deaths from hypertensive heart disease, or to distinguish between hypertensive and non-hypertensive cases of arteriosclerotic heart disease. This is because the present coding rules provide that hypertensives dying of myocardial infarction or other forms of coronary disease should be entered under arteriosclerotic heart disease. According to the published cause-of-death statistics in the countries selected, however, hypertensive heart disease accounts for between 1% of all cardiovascular deaths in Japan and 18.2% in the non-white population of the USA. The death rate ranges between 2.3 (Japan) and 82.7 (non-white population of the USA) per 100,000 population.

Rheumatic Fever. This cause is responsible for between 0.1% and 0.4% of deaths due to all cardiovascular diseases. Death rates of the populations under discussion range between 1.4 (non-white population of the USA) and 0.3 Netherlands), with a median rate of 0.8 per 100,000 population.

The median death rate below 45 years of age was 0.6 per 100,000 population, and increased with age until it reached 1.2 in the age group 75 years and over. It is interesting to note that the death rate is exceptionally high in Japan in the older age groups, being 4.9 in the age group 65–74 years and 7.1 in the age group 75 years and over.

Chronic Rheumatic Heart Disease. In the countries selected this cause of death accounts for 1.5–3.1% of deaths due to all cardiovascular diseases. The death rates range between 3.6 (Japan) and 18.9 (England and Wales) per 100,000 population.

The age specific death rate progresses with age. The median rate is 1.3 per 100,000 population below 35 years of age, and increases to 45.4 in the age group 75 years and over.

In all the countries selected, the death rate is higher for females than for males, with the exception of the USA, where it is practically the same for both sexes.

Congenital malformations of the circulatory system are the cause of 0.7 to 1.7% of deaths due to cardiovascular diseases. The death rate ranges between 2.6 (Japan) and 6.5 (Canada) per 100,000 population.

The highest proportions and rates are found in the youngest age group, in which congenital malformations of the circulatory system are by far the most important cardiovascular disease causing death. The death rate is higher for males than for females in all the selected countries.

Cardiovascular syphilis. A generation ago syphilis ranked as a major cause of heart disease. To-day syphilitic heart disease is rare, because early treatment with penicillin eliminates the original infection long before the heart and blood vessels become involved. This may explain the present low death rate for cardiovascular syphilis, which in the selected countries ranges between 0.7 and 2.5 per 100,000 population, except in the non-white population of the USA, where the rate is 5.6 per 100,000 population.

The death rate for cardiovascular syphilis does not exceed 0.2 per 100,000 population in the lower age groups, but reaches its maximum in the groups 65–74 years or above, ranging between 4.2 and 12.3 per 100,000 population (except in the non-white population of the USA, where it reaches the high level of 33.3). The death rate for cardiovascular syphilis is higher in males than in females.

NOTES AND NEWS : BERIGTE

ELI LILLY MEDICAL RESEARCH FELLOWSHIP

1960 SOUTH AFRICAN AWARD

Dr. R. Kamener

Dr. R. Kamener, of the Department of Medicine, University of the Witwatersrand, has been awarded the Eli Lilly Medical Research Fellowship (South Africa) for 1960.

The Fellowship is tenable for 1 year in the United States of America.

Dr. Kamener will extend his investigations into the importance of certain physical factors in dyspnoea in health and disease.

* * *

Dr. H. Isaacs, M.B., B.Ch., Dip. Med. (Rand), M.R.C.P. (Edinburgh), has commenced practice as a Physician at 201 Lister Buildings, 267 Bree Street, Johannesburg.

(*Telephones*:— *Rooms*: 22-7460, *Residence*: 44-0358).

* * *

Dr. R. E. Bernstein, Head of the Electrolyte Research Unit at the South African Institute for Medical Research, has left for overseas where he will attend 5 International Congresses at which subjects related to his research activities will be discussed. They are the Congresses of Endocrinology, Clinical Chemistry, Internal Medicine, Nephrology and Cell Biology.

Dr. Bernstein will be Chairman of the Section on Metabolic Abnormalities and Leader of a Discussion Group at the Congress of Clinical Chemistry at Edinburgh. He will read papers at four of the Congresses. The papers will deal with various aspects of Dr. Bernstein's research into the metabolism of red cells, estimation of body water with amino-antipyrines, water diuresis, and cation transport by blood cells.

Dr. Bernstein has been awarded an S. L. Sive Memorial Travelling Fellowship to enable him to attend the Congresses.

* * *

Dr. J. H. S. Gear, Director of the South African Institute for Medical Research, who has been invited to attend the 4th Conference of the Industrial Council for Tropical Health at Boston and the 5th International Poliomyelitis Conference in Copenhagen left for overseas on 17 July. At the Tropical Health Conference Dr. Gear will be Chairman of the Section on Schistosomiasis and will read a paper on *The Problem of Bilharziasis in South Africa.*

At the Poliomyelitis Conference, where he will officially represent the South African Institute for Medical Research and the University of the Witwatersrand, he will be a panel member in one of the sections.

MEDICAL FILMS

Glaxo-Allenbury (S.A.) (Pty.) Ltd. announce an important addition to their film library, viz.:

The Griseofulvin Story: How the new antibiotic was discovered and developed, 1939-1959. (16 mm. colour and sound; 21 minutes). Other recent films include:

Thought for Food: A nutrition research team plans a complete food.

A Vitamin Emerges: How vitamin B_{12} was isolated and how research is increasing knowledge of this vitamin.

Longer Life for BCG: The contribution of research to the manufacture and standardization of freeze-dried BCG vaccine.

These films will readily be supplied on loan to interested medical practitioners who should write to the company at P.O. Box 485, Germiston, Transvaal. *Telephone:* 51-8531.

* * *

PRIMARY SOURCES IN MEDICINE REISSUED

The pressure of keeping up with the mass of new material has too often caused students of medicine and members of the profession to neglect older and basic sources. Recognizing this neglect, Dover Publications Inc. (180 Varick Street, New York 14, N.Y., U.S.A.), has added three classics of medical history to its highly successful series of moderately priced reprints in the medical sciences.

A Source Book in Medical History, compiled by Logan Clendenning ($2.75) offers a panoramic view of the development of modern medicine through the contributions of men who made medical history. An anthology of the most significant medical writings of 4,000 years, this volume covers every area of medicine from the theories of the early Egyptians to Roentgen's discovery of X-rays. The 124 papers by 120 authors are documented with critical and biographical notes by the editor.

Twelve papers that revolutionized medical science have been brought together in C. N. B. Camac's *Classics of Medicine and Surgery* ($2.25). These are the papers, by eminent physicians from Harvey to Holmes, which laid the foundations for modern medical theory and practice. Included in this collection are papers by Lister on *The Antiseptic Principle of the Practice of Surgery,* Auenbrugger on *Percussion of the Chest,* Jenner on the smallpox vaccine, Morton on *The Physiology of Ether,* and others.

Third in Dover's expanded programme of medical classics is William Beaumont's famous study on the mechanism of digestion, *Experiments and Observations on the Gastric Juice and the Physiology of Digestion* ($1.50). Beaumont's work with Alexis St. Martin remains a unique landmark in man's knowledge of his body processes.

In order to continue issuing quality editions of works in medicine at reasonable prices, Dover Publications would welcome suggestions on important, but often unavailable or out-or-print books for republication. The senders of the first 100 suggestions received by the publisher will receive, free of charge, their choice of any book on Dover's extensive list.

ELI LILLY MEDICAL RESEARCH FELLOWSHIP PROGRAMME

Ten physicians from 8 different nations visited the Indianapolis laboratories of Eli Lilly and Company recently as part of the company's international medical fellowship programme.

The physicians saw Lilly's research facilities, including the clinical research laboratory at Marion County General Hospital during their stay. They also visited manufacturing departments and observed processing and control procedures used in preparing various pharmaceutical, biological, and antibiotic products.

Under the Fellowship Programme, the physicians are spending one year in postgraduate study in leading hospitals and universities throughout the United States of America.

Since 1945, when the programme was started, a total of 110 Fellowships has been awarded to outstanding physicians. Each Fellow is chosen by medical leaders in his own country.

The purpose of the educational awards is to raise the standards of medical teaching, stimulate medical research, and help improve public health. Some former Fellows have become full-time professors, and one is at present Dean of the National University of Colombia at Bogotá.

The 1960 Fellows include:

Dr. Hymie Gordon, Cape Town, South Africa, who is working in the field of genetics and epidemiology at the Moore Clinic of the Johns Hopkins Hospital in Baltimore, Maryland.

Dr. Alonso Cantú Cantú, Monterrey, Mexico, who is studying in the Department of neurology and psychiatry of the University of Texas Medical School.

Dr. Juan Federico Cruz Krohn, Mexico D.F., Mexico, who is working in the field of endocrinology at the National Institute of Health in Bethesda, Maryland.

Dr. Enrique Du Teil, Guatemala City, Guatemala, who is studying neurology, psychiatry, and psychoanalysis at the University of Illinois College of Medicine.

Dr. Ronald F. Fletcher, Birmingham, England, who is studying gastroenterology at Johns Hopkins University School of Medicine in Baltimore, Maryland.

Dr. George R. Hug, Zurich, Switzerland, who is working in the field of metabolism at Washington University in St. Louis, Missouri.

Dr. James R. Lawrence, North Adelaide, Australia, who is studying renal diseases in the Department of Medicine of the University of Illinois College of Medicine.

Dr. Jorge E. Matallana, Cali, Colombia, who is studying pediatrics at the Lincoln Hospital in New York City.

Dr. Isaac Molocznik, Buenos Aires, Argentina, who is studying endocrinology at the Jefferson Medical College in Philadelphia, Pennsylvania.

Dr. Adam L. Turnbull, London, England, who is studying haematology and general medicine at the University of Washington, Seattle.

PREPARATIONS AND APPLIANCES

FLUITRAN TABLETS

SCHERING CORPORATION, U.S.A.

Fluitran as a diuretic, antihypertensive agent:

activity 10 to 20 times that of hydrochlorothiazide; 100 to 200 times that of chlorothiazide;

more equivalent sodium and chloride excretions;

higher sodium to potassium excretion ratio than chlorothiazide or hydrochlorothiazide;

lessened bicarbonate excretion and pH change;

permits liberalization of salt intake . . . often eliminates 'no salt' diets in hypertensives;

action persists for approximately 24 hours;

onset of effect within 2 hours with peak activity within 6 hours;

remarkably high degree of safety . . . clinical evidence of electrolyte imbalance absent or rare;

no refractoriness or diminution of response with continuous usage.

As a diuretic: *Fluitran* is recommended for use in oedema associated with congestive heart failure, the nephrotic syndrome, hepatic cirrhosis, and premenstrual tension; oedema and toxemia of pregnancy; and drug-induced oedema. Therapy with *Fluitran* also may be of value in oedema associated with obesity when used in conjunction with appropriate dietary measures.

Dosage: Usual dosage is 2 or 4 mg. taken once daily after breakfast. For initial diuresis, these doses may be given twice daily since a greater 24-hour effect is frequently obtained with such a dosage schedule. The maximum single effective dose of *Fluitran* is 8 mg. For maximum 24-hour diuretic effect, this dose may be given twice daily. For maintenance, a single 2 mg. tablet once daily often may be adequate, while doses as low as 1 mg. (one-half a 2 mg. tablet) occasionally prove satisfactory.

As an Antihypertensive: *Fluitran* is of value both as primary therapy in the management of hypertension with or without the presence of oedema and in combination with other antihypertensive agents such as ganglionic blocking agents and rauwolfia alkaloids. The efficacy of other antihypertensive agents is enhanced when *Fluitran* is administered concomitantly. The dosage of antihypertensive agents should be reduced by 50% when they are given to patients already undergoing therapy with *Fluitran*. A similar reduction in dosage should be made if *Fluitran* is added to these drugs when they are being administered as primary therapy. In normotensive individuals, *Fluitran* does not cause hypotension.

Dosage: Usual dosage is 2 or 4 mg. once daily with initial therapy often requiring these doses to be administered twice daily. The 4 mg. dose given once or twice daily is usually the most effective dosage initially. Higher doses would ordinarily not be required, but may be used initially.

Precautions: It should be kept in mind that *Fluitran* is an extremely potent agent requiring low milligram doses for therapeutic effectiveness and therefore should be used accordingly. Electrolyte depletion may occur with overvigorous therapy, and maximum doses should not be used repeatedly or frequently. Clinical evidences of electrolyte imbalance have been absent or notably infrequent. However, if there is any reason to suspect electrolyte imbalance, repeated serum and urine electrolyte determinations should be made and appropriate measures instituted. The doctor should consult the Schering Corporation U.S.A. *Statement of Directions* for details on indications, dosage and administration precautions and contraindications.

Packaging: *Fluitran* Tablets, 2 mg. and 4 mg. Bottles of 30 and 100.

Manufactured by: Scherag (Pty.) Limited, P.O. Box 7539, Johannesburg.

STAPHYLOMYCIN: A NEW ANTIBIOTIC

Keatings Pharmaceuticals Ltd. announce the availability of *Staphylomycin*, a new antibiotic discovered and perfected by the R.I.T. Laboratories of Belgium.

Staphylomycin *is bactericidal in low concentrations and destroys even those strains of staphylococcus resistant to antibiotics such as erythromycin, novobiocin, chloramphenicol and chlortetracyline.*

A striking feature of *Staphylomycin* is the complete absence of toxicity. Clinically, no untoward renal or hepatic effects have been reported, nor has *Staphylomycin* therapy affected the nervous or hematopoietic systems. This notwithstanding the fact that extremely high doses have been administered.

The only side effects reported are gastric intolerance (in less than 2% of patients) and, even less frequently, cutaneous or mucous surface reactions.

Although *Staphylomycin* is effective in infections caused by staphylococci, streptococci and pneumococci, *its major role lies in the treatment of infections caused by strains of staphylococci resistant to other antibiotics.*

Staphylomycin is available in capsules, throat tablets, eye drops, ointment, surgical powder and a suspension for instillation.

Staphylococcal enterocolitis, staphylococcal septicaemia, staphylococcal pneumonia and staphylococcal pulmonary abscesses have been successfully treated with the capsules.

The daily dose is 12 capsules until improvement (usually on the second day); thereafter 6 capsules daily. The reduced dosage should be administered for 2–3 days after the temperature has become normal.

The initial dose for children is 30 mg. per Kg. body weight daily with a daily maintenance dose of 20 mg. per Kg. body weight.

Chronic osteomyelitis (when a fistula is present) and breast abscesses will respond to the instillation of the suspension.

In *urology*, staphylococcal pyelitis and cystitis both respond rapidly to the oral administration of *Staphylomycin*, as it is eliminated through the kidneys and is recovered in a concentrated and active form in the urine.

In *dermatology*, *Staphylomycin* ointment is effective in the treatment of furunculosis, infected acne, impetigo and paronychia.

In *surgery*, the application of *Staphylomycin* surgical powder or suspension before closing the wound, will prevent post operative staphylococcal infections.

In a surgical department where Staphylomycin *has been used for more than 3 years as a prophylactic during the course of each major operation, no staphylococci resistant to* Staphylomycin *have been isolated.*

In *ophthalmology*, ulcerous blepharitis and staphylococcal conjunctivitis as well as styes, respond well to *Staphylomycin* eye drops.

In *otorhinolaryngology*, as *Staphylomycin* is active against pneumococci and streptococci as well as staphylococci, the instillation is particularly effective in otitis media or externa. The throat tablets are effective in anginas and mouth and throat infections due to gram-positive cocci.

Further information available from:
Keatings Pharmaceuticals Ltd., P.O. Box 256, Johannesburg.

LENIC HIGH POTENCY

Westdene Products (Pty.) Ltd. announce the introduction of a new high potency formulation of **Lenic** capsules, manufactured by Chemway International of America.

Lenic is an unsaturated fatty acid complex for hypercholesterolaemia. In the new high potency capsules the content of the higher unsaturates (tetra, penta and hexaenoic) have been trebled. This development is in keeping with the latest trends in this field since workers such as Kinsell *et al.*, *Lancet*, February 1958, have shown that arachidonic, pentaenoic and hexaenoic acids taken together are 5-8 times as potent gramme for gramme as linoleic acid in lowering blood cholesterol levels.

According to Warne *et al.* (*American Journal of Medical Science*, July 1959) **Lenic** capsules together with a moderate fat diet will lower elevated blood cholesterol levels in 80% of patients. They also reported subjective improvement in intermittent claudication, in vascular stasis, in those with peripheral vascular diseases and in anginal spasms in coronary insufficiency.

Despite the increase in the content of the higher unsaturated fatty acids, the price of **Lenic** H.P. capsules

remains the same. The calorie content of each capsule also remains at 9.

The dosage now suggested for **Lenic** H.P. is 2 capsules 3 times a day, after meals for 10-12 weeks. The new capsules are coloured lime green to distinguish them from the previous deep red capsules.

Futher information may be obtained from the sole South African distributors, Westdene Products (Pty.) Ltd., P.O. Box 7710, Johannesburg. *Telephone:* 23-0314.

HUMATIN KAPSEALS

A MAJOR ADVANCE IN THE ANTIBIOTIC TREATMENT OF INTESTINAL INFECTIONS

Parke, Davis have introduced *Humatin* sulphate, a new antibiotic agent, unique among known antibiotics in that it has high antiamoebic and antibacterial activity coupled with low oral toxicity.

Description: *Humatin* (paromomycin, Parke-Davis) is a white, amorphous, stable, water-soluble antibiotic obtained from aerated culture filtrates of *Streptomyces rimosus forma paromomycinus.*

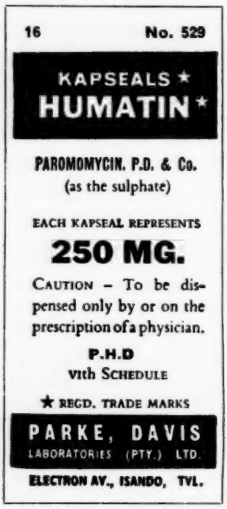
Indications: *Humatin* is highly effective for treating bacterial and amoebic infections of the intestinal tract. *Humatin* is indicated in the treatment of patients with dysentery caused by Shigella, Salmonella and *Escherichia coli,* as well as in the management of intestinal infections due to unidentified pathogens.

Humatin has also proved effective in the treatment of acute, subacute and chronic cases of intestinal amoebiasis.

Other indications for *Humatin* are pre-surgical suppression of intestinal flora and as an aid in the management of hepatic coma.

Dosage and Administration: *Orally*: *Amoebiasis*: For *adults* 4–6 *Kapseals* daily in divided doses for 5 days, have proved effective.

For *children* 12.5 mg. per lb. bodyweight daily for 5 days is applicable. Larger doses may be required in particularly obstinate cases.



Bacterial Gastro-Intestinal Infections: In the treatment of patients with Salmonella infections and diarrhoea due to unidentified pathogens, a dose of 25 mg. per lb. bodyweight daily is recommended in divided doses for up to seven days. Shigella dysentery and *Escherichia coli* gastro-enteritis can be expected to respond to half this dose. Doses up to 50 mg. per lb. have proved necessary when the infection has been particularly severe or the organisms less sensitive. Treatment may be repeated if necessary.

Pre-Surgical Suppression of Intestinal Flora: Prior to bowel surgery, a dose of 500 mg. of *Humatin* 4 times daily for 4 days is suggested.

Management of Hepatic Coma: Doses of up to 6 g. daily have produced good results.

Side Effects: During clinical investigation, normal individuals have experienced constipation initially, but they have usually developed loose stools when doses in excess of 2 g. daily were given for a period of more than 3 days. On higher doses, 4–10 g. daily, some individuals have developed moderately severe diarrhoea which is relieved by withdrawing the drug. Abdominal cramps, pruritus ani and heartburn have been reported. The use of this antibiotic, as with other antibiotics, may result in an overgrowth of non-susceptible organisms, particularly upon prolonged usage. Enteritis due to staphylococcal superinfection has not been reported with *Humatin.*

Package Information: Kapseals each containing *Humatin* sulphate equivalent to 250 mg. *Humatin* base in bottles of 16.

DELENAR TABLETS

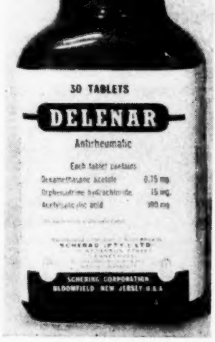
SCHERING CORPORATION, U.S.A.

Formulated for comprehensive therapy of the 3 major rheumatism symptoms:

1. Inflammation—Dexamethasone Acetate.
2. Muscle spasms—Orphenadrine HCl.
3. Pain—Aluminium Aspirin.

Description: Each *Delenar* Tablet contains dexamethasone acetate 0.15 mg., orphenadrine hydrochloride 15 mg., and aluminium aspirin 300 mg.

Indications: *Delenar* is especially indicated for rheumatism and mild arthritis. Other indications include mild or moderate spondylitis, subacute or interval gout, bursitis, lowback strain, synovitis, tenosynovitis, neuritis, shoulder-hand syndrome, nonspecific low-back pain, torticollis and whiplash injuries.



Advantages: This combination of a corticoid, dexamethasone acetate, with a salicylate, aluminium aspirin, permits use of minimal yet effective dosages of each and thus reduces the likelihood of undesirable effects. The muscle relaxant action of orphenadrine is of particular benefit in rheumatic and traumatic conditions involving tendons, joints and soft tissues. Aluminium aspirin, being a neutral form of acetylsalicylic acid, is 'inherently buffered.' It has greater stability than acetylsalicylic acid and does not develop an astringent taste or acetic acid odor. When administered for mild to moderate rheumatic and traumatic conditions affecting joints, tendons and soft tissues, *Delenar* produces a rapid subsidence of aches, stiffness of joints and pain on motion. Generally, there is objective improvement manifested by a decrease in joint size and an increase in range of motion.

Action: *Delenar* provides muscle relaxation with orphenadrine, to supplement the anti-rheumatic, anti-inflammatory and analgesic actions of the corticos-

teroid-analgesic combination. The corticoid component of *Delenar* dexamethasone acetate, exerts anti-inflammatory and anti-rheumatic effects at exceptionally low dosage. The definite muscle relaxant effect of orphenadrine is usually accompanied by a mild mood elevation effect. The analgesic and antipyretic activity of aluminium aspirin is comparable to that of acetylsalicylic acid.

Dosage: Therapy should be individualized according to the nature and severity of the illness, as well as the rate and degree of patient response. Chronic or Subacute Conditions (i.e. rheumatism, mild forms of rheumatoid arthritis, spondylitis and subacute or interval gout).

Initial Dosage: Two *Delenar* Tablets *q.i.d.*

Maintenance Dosage: The initial dosage should be gradually reduced to reach an adequate maintenance level—usually one *Delenar* Tablet *t.id.* or *b.i.d.*

Acute Conditions (i.e. bursitis, myositis, synovitis, fibrositis). Initial Dosage: Two *Delenar* Tablets *q.i.d.* After improvement is obtained (usually within 3 days), reduce dosage gradually and then discontinue.

Note: Dexamethasone acetate, in the low dosage present in *Delenar* Tablets, generally does not cause side effects of clinical significance. However, it should be borne in mind that dexamethasone acetate is a corticosteroid and the possibility of side effects occurring cannot be excluded.

Packaging: *Delenar* Tablets, bottles of 30 and 100.

Manufactured by: Scherag (Pty.) Limited, P.O. Box 7539, Johannesburg.

BOOK REVIEW

APPRAISAL OF FELLOWSHIPS

Appraisals of Fellowships: Report of a Study Group. World Health Organization: Technical Report Series, 1960, No. 186; 15 pages. 1s. 9d. Pretoria: Van Schaik's Bookstore (Pty.) Ltd., P.O. Box 724.

During the past decade, a vast amount of time, energy and money has been spent on the expansion of organized schemes for assisting qualified persons to undertake study or training abroad. To justify the continuation of such fellowship schemes and to ensure that the time and money are being used in the best possible way, adequate evaluation of the methods and results is essential. This report examines the problems confronting administrators planning appraisal of fellowship schemes, and suggests criteria for appraisal.

In view of the expense of large-scale appraisals, it is unlikely that they will be made frequently, but many day-to-day procedures in organizing fellowship schemes should be subject to continual critical examination. A precise statement of the objectives of a fellowship is a prerequisite for any satisfactory appraisal. The questions asked in the appraisal must be carefully chosen to elicit the information required, while eliminating, as far as possible, subjective judgments; but these, too, have their merit. Appraisals may be based on written evidence from the fellow's personal dossier, questionnaires, reports, etc. on the results of personal interviews, or on data obtained from field visits by selected persons. The report analyses the various methods and concludes that each has its values and its weaknesses; the choice of method will depend, therefore, on the nature of the fellowship programme and the type of appraisal planned.

Among the criteria of appraisal suggested are the choice and qualifications of fellows, the adequacy of the programme of study and of the administrative arrangements, the adjustment of the fellow to the conditions of study or training, his training record, and the results of his training, in terms of his subsequent employment and performance, his influence on the community, and benefits both to his own and the host country. Many aspects of appraisal are still in need of investigation. The report recommends the following subjects for further study: development of a series of case-histories of successful and unsuccessful fellowships; formulation of specific criteria for each stage of the fellowship process; evaluation of the fellow in his environment before and after the fellowship; placement of fellows; successes or failures of fellowships, and methodology of appraisals.

CORRESPONDENCE

PULMONARY DISEASE DUE TO CORK DUST (SUBEROSIS)

To the Editor: New light is constantly being shed on the pneumoconiosis problem and so the publication of the work done by Dr. Cancella and his collaborators on the pulmonary disease produced by cork dusts comes as a valuable contribution to our present knowledge of the pneumoconioses. It is of particular interest here as it is one of the few pneumoconioses as yet not encountered or described in South Africa.

In 1949 Dr. Cancella, while serving as Director of the Anti-Tuberculosis Centre connected with the Mundet Firm of cork manufacturers, was struck by the large number of employees referred to him with the diagnosis of pulmonary tuberculosis in whom tubercle bacilli, however, could not be demonstrated in the lungs despite the clinical and radiological appearances suggesting tuberculosis. The relationship between inhalation of cork dust and pulmonary disease having become apparent, a comprehensive study of this lung fibrosis resulted and the author's results and conclusions are briefly reviewed here.

The name *suberosis* derives from the taxonomical designation of the cork-oak *Quercus Suber. L.*, from which tree the bark is stripped for use in the manufacture of cork products. The author describes Portugal as the world's biggest cork producer employing an average of 20,500 workers in some 980 factories. Types of cork factories and the various processes employed are discussed.

The classification of the principal cork compounds based on dust sample analyses are tabulated and the ash content is shown as between 2.5% to 72.8%, total silica value from 0.18% to 9.82% and free silica 19.5% to 26.5% in relation to ash-weight.

The treatise is comprised of various sections detailing animal experimentation, clinical examinations, laboratory investigations, results of bronchoscopies and lung biopsies, pulmonary function analyses and radiographic features.

Various aspects in differential diagnosis are mentioned indicating similar problems here, as with the other pneumoconioses. Complications are stated to be bronchitis and spontaneous pneumothorax which are associated with suberosis. A high prevalence of tuberculosis in cork workers is discussed. Chronic cor pulmonale, while recognizable, is less frequently encountered than with silicotics. Lung carcinoma appears to be unassociated with cork dusts.

As a result of these investigations the author defines suberosis, according to Boccia's classification, as non-specific, atypical, benign fibro-pneumoconiosis of slow evolution. Subjective symptomatology commences after about 5 years of exposure to cork dust and radiographic alteration appears only after 15–18 years' employment in the same occupation. Once the lung lesions are established, continued exposure will aggravate the condition, but improvement results after prolonged removal from the dust environment. Work capacity does not appear to be markedly impaired in the early stages.

No specific treatment is recommended and preventive measures are based on dust suppression, pre-employment and periodical examinations, in view of the proven individual susceptibility having a marked influence on the progression of the disease.

T. S. Daniels,
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CRIMINAL RESPONSIBILITY

To the Editor: At the Second South African Medico-Legal Congress recently held in Durban I had occasion to make some elaborative comments on the excellent paper on *Criminal Responsibility* which was presented by Mr. A. B. Harcourt, Q.C., and I drew attention to what Lord Cooper stated in 1946, that 'the law is not ready to accept the principle that there is a section of the community chosen by medical men whose members are free to commit crime with limited liability.'

This statement is rather surprising when we consider that it has been the principle in English Common Law for more than a century to take into account the mental processes of an accused person. The maxim which was largely adhered to in legal practice was: 'A man's act does not make him guilty unless his mind is also guilty.'

My submission is firstly that if, in Lord Cooper's view, the law is not ready to accept this principle, then the question must be posed: For whom shall it be for good if this principle be rejected; and secondly that, if Lord Cooper's view be accepted, then the mere administration of retributive and punitive justice, by virtue of its so-called deterrent effect, should have brought about a reduction in the volume of crime, or else kept the crime rate at a constant low level. But this has not happened. I have examined the crime figures for the Union from 1912 to 1953 and have been able to establish that the crime rate has more than doubled over that period. The conclusion is thus difficult to resist that the determinants of liability to crime do not, in the generality of instances, lie wholly within the individual personality, but rather only partially therein, and predominantly outside thereof. Buckle put it concretely when he said: 'Society prepares the crime; the criminal commits it.' By this Buckle implied that the criminal is the product of disorganizing forces emerging from one or other segment of the human continuum, viz. the individual psychosomatic personality and, above all, the multi-dimensional environment into which that personality is projected.

Medico-sociological writers have established that the factors within the individual personality which determine liability to crime are, *inter alia*, age, sex, race, psychiatric status and economic status; and that the factors within the environment which determine the incidence of crime in a community must, correspondingly, include the age, the sex, the race, the psychiatric, the marital and the economic composition of the population.

The inference which flows from Lord Cooper's jurisprudential concept is that the individual is predominantly, and perhaps exclusively, responsible for the crime he may commit, but I feel constrained to submit that the acceptance of such a principle would mean the application of punitive and retributive justice while ignoring the logical necessity of applying preventive justice within the matrix of the human community—by which, in effect, one implies the stabilization and the harmonization of the components of the social structure.

The doctrine of freedom of will and of choice has had its stern advocates in the past, but in the light of contemporary knowledge, which conceives freedom to be a function of the pattern of interpersonal and inter-group relations, it must, perforce be regarded as limited.

The doctrine is obviously inadmissible in that, by importing the principle of absolutism, it presents the image of man as a *causa efficiens*, capable of producing one-sided effects; as a being absolutely responsible for all his actions, and as a being capable of absolute justice in human affairs. The doctrine has furthermore to be rejected on theological grounds in that it invites us to invest man with the very attributes which we have ascribed to God across the long centuries of human history. None other than Jesus had had to learn the bitter lessons of the earlier prophets: 'Put not thy trust in Princes, nor in the son of man, in whom there is no help.'

But having said so much, one must concede that there is a certain danger in blaming others for one's own inadequacies of conduct and character—a danger to which our bewildered youth stand constantly exposed.

The spirit of this equally false doctrine was deftly caught by Anna Russel in her *Psychiatric Folksong*:

> 'At three I had a feeling of
> Ambivalence toward my brothers,
> And so it follows naturally
> I poisoned all my lovers.
>
> But now I'm happy; I have learned
> The lesson this has taught;
> That everything I do that's wrong
> Is someone else's fault.'

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